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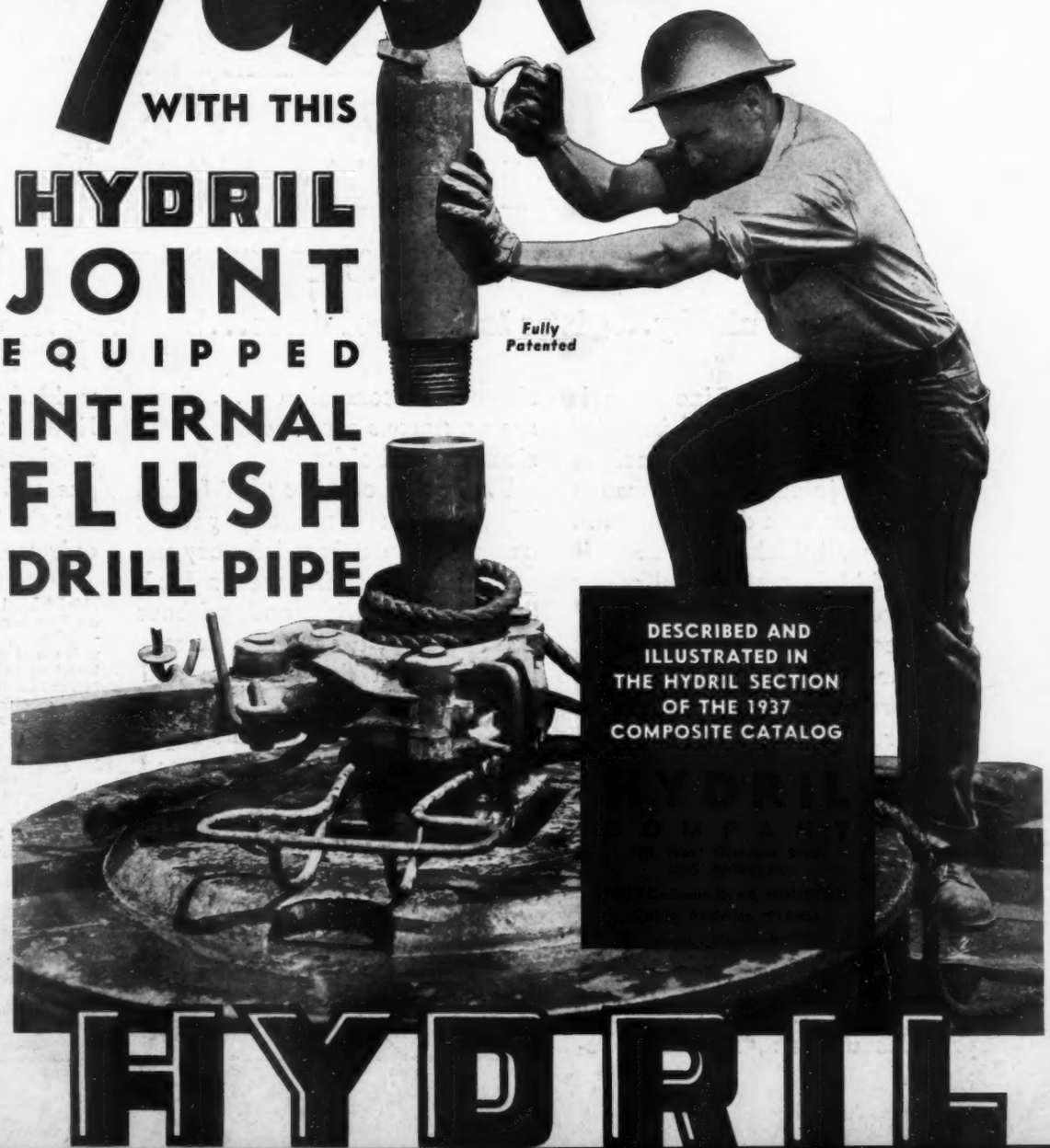

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the OIL AND GAS JOURNAL

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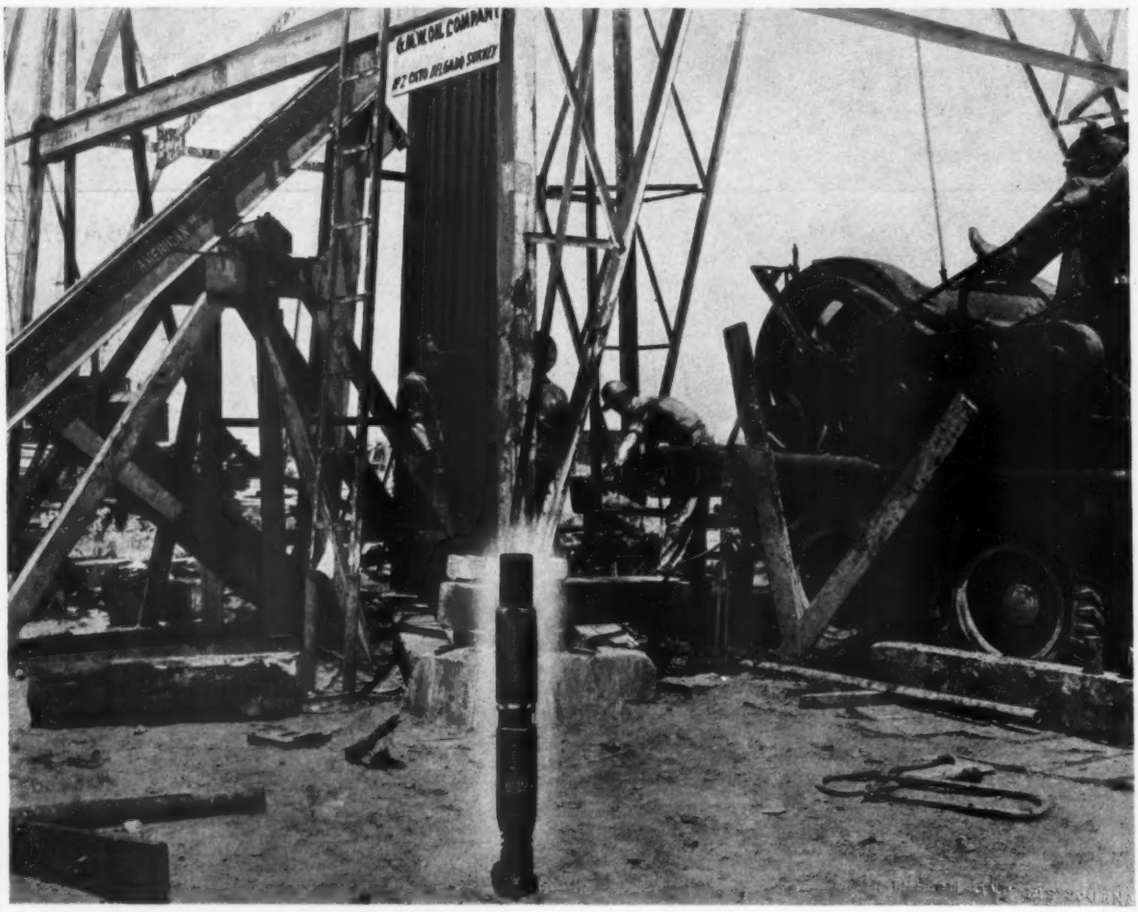

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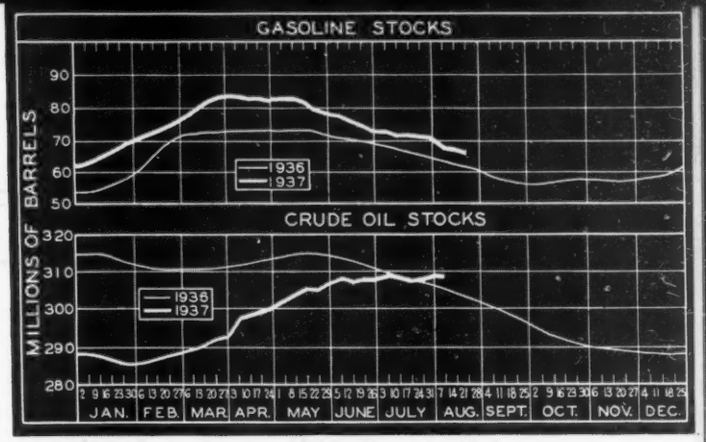


Smaller Oil Production Assured

PRODUCERS of crude oil in the United States will be asked to reduce their September production at least 150,000 barrels daily under August, it was indicated the first of the week. Following a hearing the Texas Railroad Commission on Saturday led the way in the efforts to reduce production to requirements with an announcement of an allowable of 1,441,510 barrels for September. This is a reduction of 53,758 barrels daily compared to the August 1 allowable and 103,510 barrels daily less than the average daily output of the Lone Star state last week.

CRUDE PRODUCTION *3,726,262 barrels daily average—up 15,771 barrels.*

CRUDE STOCKS *307,922,000 barrels as of August 7—down 328,000 barrels.*

GASOLINE STOCKS *67,260,000 barrels as of August 21—down 1,827,000 barrels.*

REFINERY RUNS *3,415,000 barrels daily average past week—up 75,000 barrels.*

It was believed that Oklahoma and Kansas would take similar action this week. It was predicted that Oklahoma's September allowable will be around 600,000 barrels daily, or 33,600 barrels less than the Bureau of Mines estimated demand. A substantial reduction under the government's recommendation was in prospect for Kansas. It was believed that two of the other states would make small reductions in September output.

It is felt that September will be a test month for the oil industry which will determine market trends over the rest of the year. It is pointed out that this is the first time in three years that the industry has been called upon to reduce its production materially. The last substantial reduction period was the latter half of 1934, when a curtailment program supported by the NRA oil administration was successful in restoring a balance between supply and demand.

Since the close of 1934 there has been a steady climb in crude requirements, so that seasonal changes in the demand for refined products could be ignored so far as crude output was concerned. For example crude production last fall was greater than in the summer months, and December output was the largest of the year, with steady withdrawals from storage throughout the last six months.

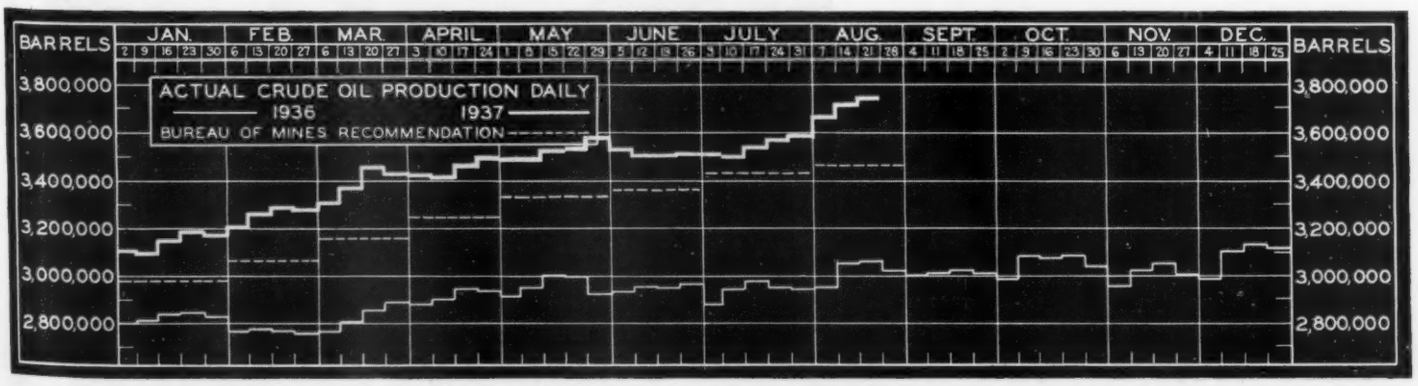
It is conceded that the industry cannot expect a duplication of this situation over the remainder of this year. Production has exceeded needs practically all year and the recent weekly peaks have served to emphasize the necessity of an immediate curtailment to correct a serious overproduction threat which has been in the making for several months.

Continued heavy refinery operations and the approach of the fall consuming season have brought scattered weakness in gasoline markets. So far, there has not been any important liquidation of gasoline stocks by major refiners. Prices on other products are generally unchanged.

Daily Average Production for Week

	Aug. 21, 1937	Bur. Mines Aug. est.	Aug. state allowable	Aug. 14, 1937
Oklahoma City	162,200	.....	.....	157,200
Fitts	97,550	.....	.....	98,725
Remainder of State	393,850	.....	.....	393,000
Total Oklahoma	653,600	633,400	633,400	648,925
East Texas	477,398	.....	.....	475,397
West Texas	242,750	.....	.....	240,698
North Central Texas	108,950	.....	.....	108,750
Texas Panhandle	87,650	.....	.....	83,147
East Central Texas	128,447	.....	.....	127,650
Gulf Coast—Texas	375,350	.....	.....	374,950
Southwest Texas	124,698	.....	.....	123,547
Total Texas	1,545,243	1,395,200	1,495,491	1,534,239
North Louisiana	86,800	.....	.....	86,535
Gulf Coast—Louisiana	176,300	.....	.....	175,150
Total Louisiana	263,100	253,900	264,550	261,685
California	674,250	612,800	612,800	672,300
Kansas	194,050	200,500	200,500	206,050
Arkansas	33,560	29,100	.....	31,530
Eastern fields	126,400	121,900	.....	122,500
Michigan	45,479	39,900	.....	44,782
New Mexico	113,880	100,800	114,000	113,960
Rocky Mountain area	76,700	75,400	.....	74,520
Total United States	3,726,262	3,462,900	.....	3,710,491

Increase of 15,771 barrels daily.



SPARKS FROM THE NEWS

ON THE SPOT

Oil states, after three years of steady production increases regardless of seasons, are now called upon to demonstrate what they can do in keeping the industry's house in order through voluntary reductions. The last curtailment in 1934 had governmental direction and support under the NRA.

ALCOHOL BLENDS

Alcohol-gasoline blends are being sold through 250 filling stations in the agricultural sections of the Middle West.

THEY WON'T

A major marketing unit will explain to consumers its future price changes. It is to be hoped that the professional investigators will listen in.

UNEASY

More than one refiner who viewed the country's gasoline stocks with complacency last spring is uneasy about them now.

EXPLANATION

The accomplishments of congress just brought to a close were disappointing to many politicians. That may explain why the oil business has less cause for complaint than usual regarding congressional activities.

ANOTHER LINE

The network of gasoline lines being laid to serve the central states will be strengthened by the laying of a 250-mile line to Indianapolis, Indiana, from a point near St. Louis, Missouri. Gasoline lines are coming to vie with crude oil lines in importance.

WEEK'S SURPRISE

Failure of the railroad commission to reduce East Texas' September allowable in light of testimony at Austin hearing regarding drop in bottom-hole pressures, was one of the surprises of the past week.

TWO FOR ONE

Two highly touted Oklahoma wildcats sounded sour notes when tested the past week, while another outpost that was lost sight of in their glamour, responded in manner that indicates the opening of a new oil pool.

KEEPING PACE

Expansion in diesel power is coming so fast that quality of fuels and lubricating oils is becoming a major consideration of manufacturers and refiners.

SOMETHING WRONG

The Tydings-Miller resale price rider apparently gives refiners control over retail prices charged for their branded products. Executives, unused to helpful legislation, are still skeptical and are looking for the sleeper which will nullify the law's application within the oil industry.

TO THE RESCUE

A 40 per cent gain in export demand for petroleum wax is proving a life-saver for refiners whose domestic outlets are declining. Foreign buyers this year have taken 46 per cent of the total wax output.

ARKANSAS REPORTS

Completion of additional wells in Miller County substantiates contentions that the Arkansas side of Rodessa development will be of major importance. Incidentally the present production of the tri-state field is exceeded only by East Texas, Oklahoma City and Fitts.

WRONG DIRECTION

A new peak in crude oil production for the fourth successive week has a negative reaction among economists. They have demand estimates for August which are substantially below these supply figures.

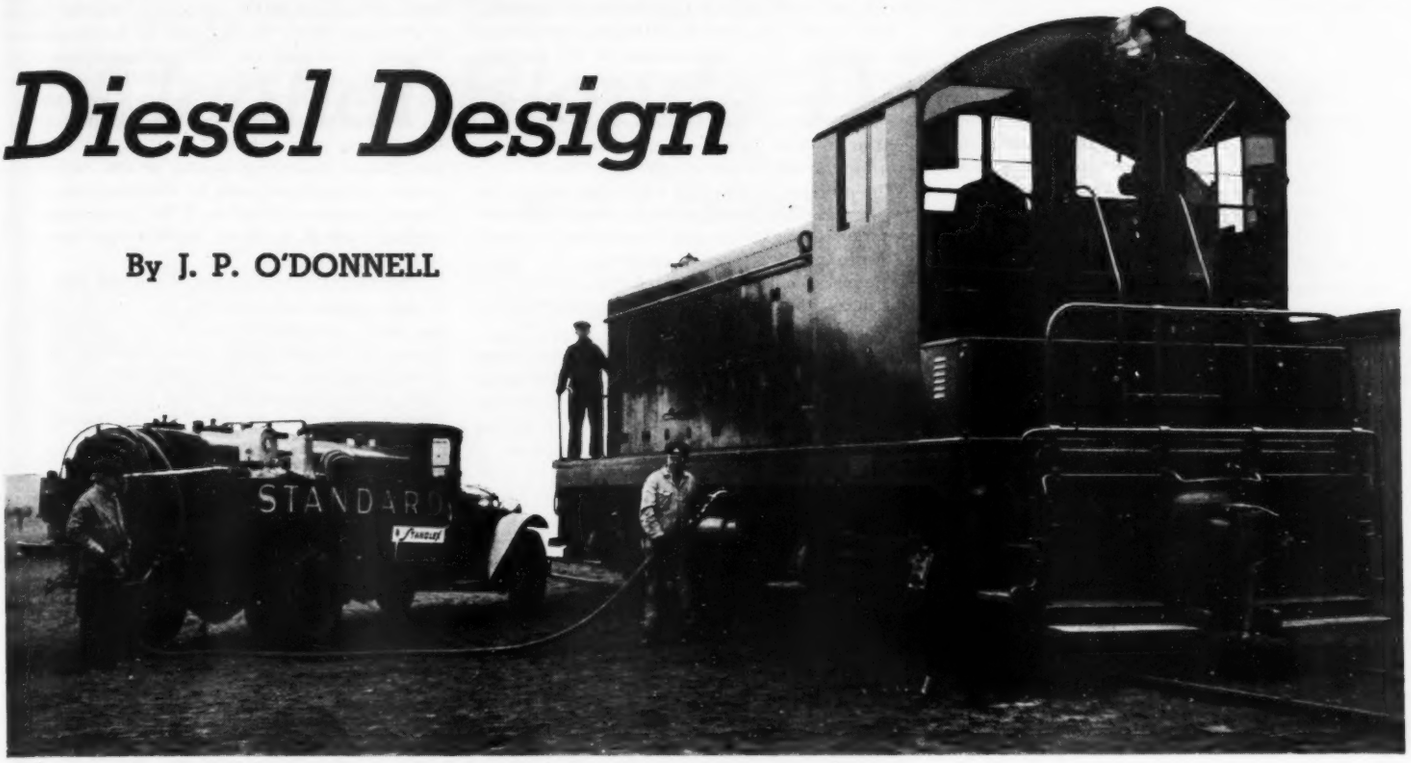
NATURE'S LABORATORY

Courtesy Our Sun

Seismograph set-up on stumps in a Gulf Coast swamp

Available Fuel Influences Diesel Design

By J. P. O'DONNELL



Fueling a diesel engine

STATE COLLEGE, Pa., Aug. 21. The controversial subject of additives in lubricating oil shared interest with predictions of greatly increased output of diesel engines in the immediate future at the tenth national oil and gas power meeting of the American Society of Mechanical Engineers at Pennsylvania State College.

In the course of his discussion of high-speed diesel engine lubrication problems, C. G. A. Rosen of the Caterpillar Tractor Co. said: "The superior operating benefits derived by the use of selected additives to basic oils is of such economic importance that their progress cannot be denied. Not only are diesel engine lubricants improved in resistance to ring sticking but advantages are derived in low cylinder and ring wear, reduced blow-by, depression of sludge, increased film strength and effective flushing and cleansing."

During the subsequent discussion, Edgar J. Kates, consulting engineer, New York City, said that in view of the varied circumstances and localities in which diesel engines are used, it should not be made mandatory that a certain, restricted type of lubricant be used but rather that the engine be so designed that any high-grade oil is satisfactory. He regarded such restrictions as an obstacle to the growth of diesel engine use.

Harry M. Rugg, Detroit, automotive engineer of the Pennsylvania Grade Crude Oil Association, supported Mr. Kates' viewpoint, adding that "due to the fact that when additives are applied for one purpose, other undesirable and deleterious conditions may result. No one additive is suitable to accomplish all the results desired." Mr. Rugg further stated that "we find many of our high-grade oils performing with excellent results and perfect satisfaction when the proper precautions are taken."

Both Mr. Rugg and Mr. Kates agreed with Mr. Rosen's conclusion regarding "the importance of cooperative research of engine manufacturers with the petroleum industry. The engine builder and the oil refiner serve a common customer and his satisfaction is achieved as a result of the combined efforts of the two industries."

Quality of Fuels

The viewpoint that the fuel problem was as much that of the designer as of the refiner was expressed in the conclusion of the paper, "A Study of Diesel Fuels," by William H. Hubner and Gustav Egloff of the Universal Oil Products Co.: "It should be pointed out that although the diesel is definitely established in certain fields, namely, marine, tractor, excavating, industrial lighting, high-speed trains and heavy-duty (above 2½ tons capacity) commercial vehicles, this one fact should be emphasized: If the diesel is to gain in popularity in these fields, manufacturers must design their engines to operate satisfactorily on fuels of average quality which are readily available at reasonable prices."

Earlier in the paper they held: "It is useless to establish 'ideal standards' of diesel-fuel quality if the cost of production and delivery of such fuel is so high as to minimize the advantages of the diesel's superior fuel economy."

Regarding the derivation of fuels they said: "Diesel fuels may be derived from petroleum, shale oil, coal tar or vegetable oils. For high-speed engines it is agreed generally that fuels of a paraffinic nature give the best results. Aromatic fuels are the least suitable.

"It is apparent that special methods of refining or treating will be necessary in the production of suitable aircraft diesel fuels or other fuels where high ignition quality and low pourpoint are essential. A number of these are as follows: Hydrogenation, polymerization, mild cracking, dewaxing, pourpoint depressors, acid treating, solvent treating and diesel dopes." The possibilities of the first two were further discussed and tables showing the effect on pourpoint and ignition quality of the others were presented.

The prediction that "within five years the gasoline engine for heavy truck or bus use will be unknown" was made by Col. O. F. Allen, consulting engineer, New York City, who said that the City of London will require all buses serving the city to be oil powered within a year. In the discussion following a talk by Martin Schreiber of the Public Service Coordinated Transport Co., Newark, N. J., Colonel Allen urged that development turn "more toward simplicity and better operation to meet public demand."

Mr. Schreiber, whose company now employs 27 diesel buses after studying their widespread use in Europe, said that the original objections of fumes and noise were overcome by using the electric drive and thus eliminating the transmission and clutch and the objection of vibration was overcome by bolting the generator and engine.

The company's trucks average 210 miles per day with an average of 2,400 stops each 24 hours, he said. In traveling a total of 807,000 miles, they have encountered interruptions only once in every 25,000 miles and those usually caused by failures in auxiliary equipment. Despite its cost and weight, the diesel is, relatively speaking, more desirable than the gasoline engine, he concluded.

Problems encountered in the early development of the diesel were described by O. D. Treiber, Hercules Motor Corp. Interesting contributions to the meeting were made by E. C. Magdeburger of the Bureau of Engineering, Navy Department, and by W. F. Joachim of the U. S. Naval Experiment Station, Annapolis, Md. (Mr. Joachim's paper was published in The Oil and Gas Journal of August 19, page 62.)

Mr. Magdeburger pointed out the advantages

of the diesel from a naval viewpoint: Ability to start and develop full load within one minute, smokeless exhaust, economy in space, comparative low weight per shaft horsepower, reliability, availability, low vulnerability and adaptability to naval requirements.

In the "Adaptation of Gas Engines to Use of Sewage Sludge Gas," W. B. Walraven, sanitary engineer of Springfield, Ill., recommended an engine "designed to stand abuse, run long hours without attention and perform when other equipment fails. This automatically turns our attention to low rotative speeds, ultra-conservative ratings and heavy parts, particularly in shafts and bearings. In other words, the engine should be the best that money can purchase, not merely something which will just get by."

He showed how Springfield's disposal plant had reduced the annual cost of purchased power from $13,320 in 1932 to $1,420 in 1937 by the use of gas coming from the anaerobic digestion of sewage sludge. This gas analyzes about as follows, he said: "Methane, 65 per cent; carbon dioxide, 30 per cent; hydrogen, 2 per cent; nitrogen, 3 per cent; oxygen, trace; carbon monoxide, trace; hydrogen sulfide, trace."

Kalman J. DeJuhasz, assistant professor of engineering research at Pennsylvania State College, gave a paper on "Determination of the Rate of Discharge in Jerk-Pump Fuel-Injection Systems."

The "Penn State Method of Diesel Fuel Testing" was described by J. S. Chandler of the Pennsylvania State College Experiment station who held that it has "proven itself to be very convenient and accurate" and that indications are "that it is equal or superior to any other devised method in regard to the results being representative."

The problem of selecting a suitable engine test procedure and the development of adequate instrumentation to make the test convenient, accurate and representative is being studied by the Volunteer Cooperative Fuel Research Group, he said, and it "is hoped that the final standardized procedure can soon be announced."

The paper on "Waste Heat Recovery from Diesel Engines," by Glenn C. Boyer, Burns & McDonnell Engineering Co., is published on page 67 of this issue of The Oil and Gas Journal.

Pacific Coast Gas Meeting at Seattle Discusses Problems

SEATTLE, Wash., Aug. 23.—Unusual optimism was apparent throughout the proceedings at the forty-fourth annual convention of the Pacific Coast Gas Association held in this city August 17-19. This association represents the entire gas industry west of the Rockies. Parallel sessions were held by the technical section, the manufacturers section, the sales and advertising section, and the accounting section.

After a welcome to the north country by a ficticious Paul Bunyan and his biographer, James Stevens, the group was addressed by James F. Pollard, president of the association and of Seattle Gas Co. He said members of the association last year sold 180,000,000,000 feet of gas and received $82,000,000 gross revenue. This year both sales and revenue show more than 15 per cent increase. Member companies were complimented on their efficiency in supplying the tremendous gas demands of the past winter. The progress of the Pacific Coast gas industry was emphasized and the results of cooperation brought out. Closer cooperation was urged between the association and the American Gas Association.

New officers elected were: President, Norman R. McKee, who is vice president of Southern Counties Gas Co. at Los Angeles; vice president, Harry L. Farrar, who is president of Natural Gas Corp. of California at San Francisco; treasurer, D. G. Martin, who is auditor of Pacific Gas & Electric Co.

Clifford Johnstone of San Francisco remains managing director. Directors elected were: W. J. Bailey of Monrovia; E. J. Coe of Phoenix; Addison B. Day, chairman of the board of Southern California Gas Co. at Los Angeles; C. R. Graham of Newark; R. A. Hornsby of San Francisco; James F. Pollard of Seattle; W. S. Vincent, vice president of Pacific Gas & Electric Co. at San Francisco; and John J. Winn of Portland. Some 385 attended the sessions held at the Olympic Hotel.

Herman Russell, president of Rochester Gas & Electric Corp. of New York and president of the American Gas Association, delivered a well accepted address on the "Economics of Gas and Electric Competition." He said electric companies were failing to profit by acceptance of much household heating appliance business because their rates failed to compensate for the cost of additional wiring and added load.

The most important subject matter discussed by the technical sessions was the manufacture of oil-gas. Gas cracked from heavy oils has long been used on the Pacific Coast in municipal distributing systems, and most larger cities supplied with natural gas use standby equipment for augmenting the supply with oil-gas in case of shortage in cold weather. Last winter these plants proved to be of great importance, and much operating data was obtained.

The proceedings of the Pacific Gas Association contain the only complete record of this rapidly developing branch of the oil and gas industries. This year four papers were concerned with oil-gas. George R. Horning of the Seattle Gas Co. described Seattle's new oil-gas plant. Experience gained in last winter's operation of oil-gas standby plants was related by C. W. Beck and M. J. Cereghino of Southern Counties Gas Co. at Los Angeles, R. A. Chambers of San Diego Consolidated Gas & Electric Co. and J. E. Kelley of Pacific Gas & Electric Co. The yield of tar in the manufacture of high B.t.u. oil-gas was discussed by C. Eldon White of San Diego. Operating results at the new Jones process oil-gas plant built by Honolulu Gas Co. at Honolulu were disclosed by L. B. Jones, consulting engineer, and E. S. Jones, general superintendent of Honolulu Gas Co.

The technical session also discussed new developments in gas measurement, such as the integrating meter, dehydration as used in the Montana Power Co.'s transmission lines, operation of compressor stations, pipe-line protection, and many other subjects pertaining to the production, transmission, treatment, distribution and manufacture of gas.

Recreational resources of Seattle were enjoyably utilized by the program committee. Golf, boating, swimming, fishing, dancing, banquets and mountain trips were included.

JAMES F. POLLARD

To Build Dehydration Plant

FORT WORTH, Tex.—Cities Service Gas Co. will soon start construction of a dehydration plant at its Pampa, Tex., compressor station. It is planned to have the plant completed and in operation by October. The plant will remove water and moisture from the gas before it is injected into the transporting main lines and will permit operation of the 20-inch main line at high pressures.

In connection with this program, two field compressor units of 230 hp. each will be constructed at stragetic points, and a small amount of gathering lines laid.

OBITUARIES

ADOLPHUS A. HOCH, SR., 87, prominent oil producer of Chicora, Pa., died recently.

C. L. WATERBURY, 50, of Tyler, Tex., member of the federal oil tender board No. 1 at Kilgore, died last week.

HARRY S. TILLINGHAST, 57, vice president of the Simpson-Fell Oil Co. of Ardmore, Okla., died at West Warwick, R. I., after a heart attack.

ACTON POULET, former general manager of Standard Oil Co. of Indo-China, died August 16 in Nice, France, where he lived for several years after retiring.

J. F. COYLE, 57, well-known oil man, died at his home near Oil City, La., last week. He had been connected with Texas Co. for 21 years and was serving in the production department.

JOHN HOWARD JORDAIN, American manager of Vacuum Oil Co. in Spain, was killed August 19 in an automobile accident between Valencia and Barcelona. He was a native of Georgia and had served as manager of Socony-Vacuum Oil Co.'s operations in Spain for 12 years.

JOHN LUPHER PORTER, 69, an executive of several western Pennsylvania corporations, who for two years, 1893-95, was with the Anglo-American Oil Co. in London, died recently at Clifton Springs Sanitarium, N. Y., following an emergency operation. He was a native of Meadville, Pa.

Original Plans for Marketing Alcohol-Blends Developing

By W. T. ZIEGENHAIN

Handicapped by a year of steadily rising farm-product prices, the movement to manufacture alcohol-gasoline blends in the United States and sell them in competition with gasoline reflects less of the enthusiasm with which the program was first launched. However, those in charge are confident of its ultimate economic success, because they have been able to effect certain substantial savings in the manufacture and distribution of the product. Already they claim more than 250 filling station outlets throughout Kansas, Missouri, Nebraska, Iowa, the Dakotas and Minnesota. They foresee the expansion of this number throughout the immediate future.

But before discussing the marketing of these alcohol blends, it may be of interest to review briefly the circumstances under which their manufacture started (*The Oil and Gas Journal*, September 17, 1936, page 39). It will be remembered that active support of the broad program of manufacture and marketing to extend over several years was first provided by the Chemical Foundation early in 1936 when it advanced $116,000 for the rehabilitation of an idle 10,000-gallon per day ethyl alcohol plant located on ground owned by the Bailor Manufacturing Co. at Atchison, Kans. The money was advanced as a loan to Bailor who was to act as manufacturer and Bailor was to sell the output of the plant to a newly formed company, the Chemical Foundation of Kansas Co. The latter agreed to pay for the cost of production plus 2 cents a gallon as a margin of profit. The new company was to sell the alcohol in the form of "Agrol Fluid," a blend of ethyl alcohol and denaturants. The Chemical Foundation of Kansas Co. then laid plans to market this Agrol Fluid through central blending plants and to supervise the sale of the finished motor fuel blends for a period of two years.

Obviously, under this marketing arrangement, alcohol-gasoline blends have been handicapped through having to withstand the cost of transporting the Agrol Fluid or the refinery gasoline to the blending plants and then the cost of transporting the blend to the point of consumption. This is in contrast with the single cost of transporting the gasoline directly from the refinery to the market.

To overcome this an effort was first made to get the Interstate Commerce Commission to issue a "blending in transit" rate, comparable to the "milling in transit" rates which have been granted flour manufacturers. In this, the foundation has been unsuccessful.

The most recent move has been to interest tank-truck operators to undertake a similar arrangement. The plan, if applied on a broad scale, will enable the jobber to buy a predetermined quantity of Agrol Fluid at the plant in Atchison, load it onto a tank-truck and complete the load with gasoline purchased from one of the refineries located near Atchison. In this manner, the foundation feels that it has substantially reduced the cost of alcohol motor fuels to the consumer.

Another saving effected in the past year has been in getting permission on March 29, 1937, to revise the formula used in denaturing the alcohol. Instead of requiring the foundation to blend 50 per cent gasoline with the alcohol to make the Agrol Fluid, the former used with other materials as adulterants, the foundation has been granted permission to use up to 78 per cent ethyl alcohol and the nature of the adulterants has been changed so that under the revised method of adulterating a savings of close to 3½ cents per gallon of alcohol is effected. While this is a substantial amount, the cost of the denaturant is still relatively high, amounting to approximately 2½ cents per gallon of alcohol delivered. This becomes quite evident when it is seen that Agrol Fluid is made up of 78 per cent ethyl alcohol and 22 per cent denaturants.

A more important cost factor, however, is the price paid for the farm products which serve as a base for the manufacture of the ethyl alcohol. In the past year the delivered prices on corn, wheat and other grains have been high enough to make it impossible to profitably manufacture alcohol-gasoline blends in competition with the lower priced gasolines. Practically all of the alcohol blends called for a premium. Also, since grain prices have mounted so materially it has been found necessary to look to other farm materials as source of raw materials. In the search the plant at Atchison has operated somewhat as an experimental unit for the greater share of the past year processing artichokes, sweet potatoes and Louisiana blackstrap molasses in addition to corn, oats, barley, rye, kaffir and milo.

Somewhat as a result of these experiments the foundation decided to modify the plant equipment to increase its flexibility and better enable it to utilize a variety of raw materials. The plant has been temporarily shut down and when it resumes operation about September 1 it will process a mixture of grains, probably mainly corn and kaffir with some oats. During September and October it is expected to operate at about one-half capacity and thereafter the full 12,300-gallon-per-day capacity is expected to be utilized. The rate of production will be determined in part at least by the success of the new "blending in transit" arrangement mentioned previously and by the expansion of sales among the refiners who are active in the sale of Agrol blends as a means of selling more of their own products.

Unloading gasoline at the Atchison, Kans., blending plant. Note the Agrol "5" insignia which indicates the grade of motor fuel

Most recently the Vickers Petroleum Co., operating a refinery at Potwin, Kans., took over the jobber accounts of the Farm Products Co., the latter being affiliated with the Chemical Foundation of Kansas. The Kanotex Refining Co. of Arkansas City, Kans., is also doing custom blending for a number of accounts including the House of Gurney operating in the Dakotas and the Fargo Oil Co. in Denver.

Several large jobbers including the Winstun Oil Co. of Kansas City, the Salyer Oil Co. of Oklahoma City and the Searle Petroleum Co. of Omaha do their own blending.

Blending has been conducted on a large scale by the Power Fuel Co. at Superior, Nebr., which is the northern terminal of the Champlin Refining Co.'s gasoline pipe line which leads out of the company's refinery at Enid, Okla.

At the present time these blends are being sold by the Fair Price Petroleum Co. in the Dakotas, northern Nebraska, northern Iowa and southeastern Minnesota, by Farmers unions in Nebraska, by the Searle Petroleum Co. in eastern Nebraska and in western Iowa, by the Square Deal Petroleum Co. in Ames and Newton, Iowa, by the Winstun Oil Co. of Kansas City and by many small independent dealers throughout the territory mentioned.

(Continued on Page 42)

Coastal Reserve Developed by Deeper Drilling Important

By NEIL WILLIAMS

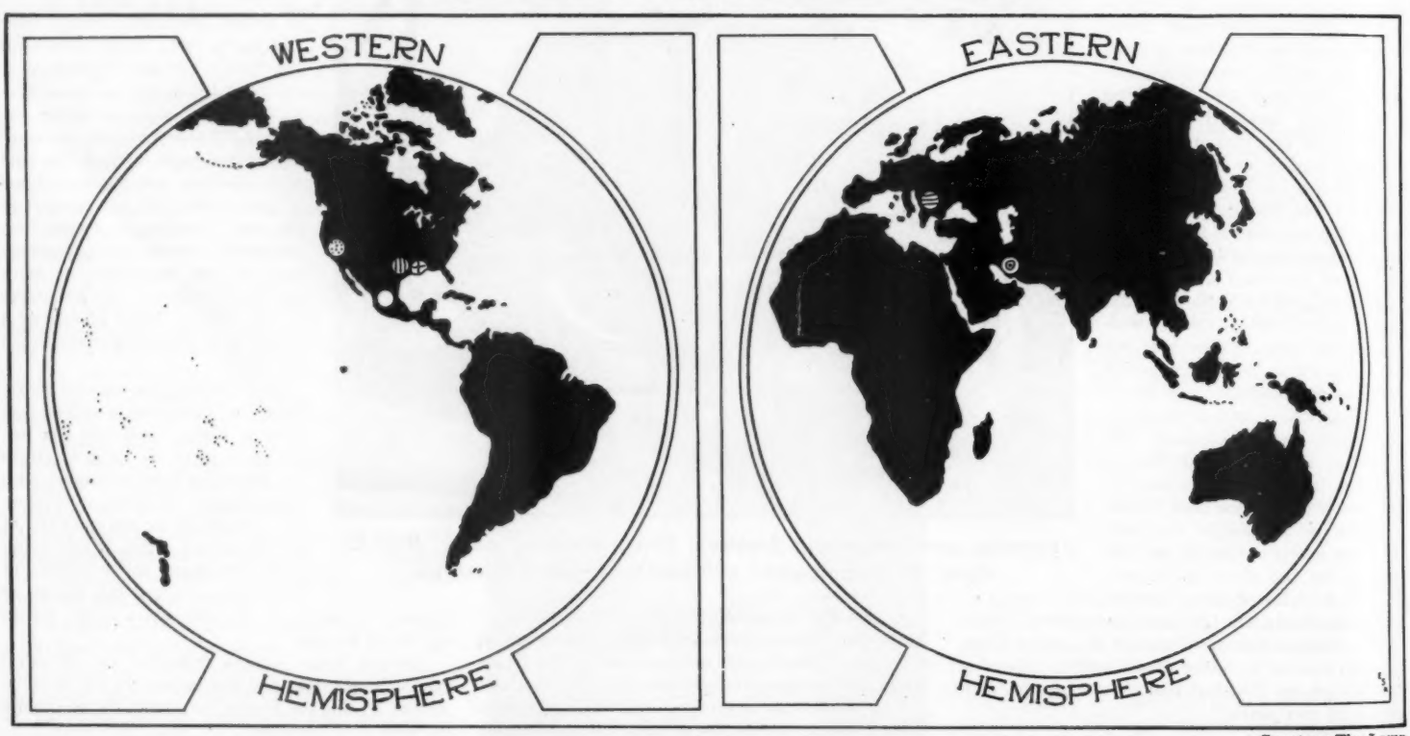
HOUSTON, Tex., Aug. 23.—The steadily increasing number of fields and wells on the Gulf Coast producing from below 9,000 feet is definitely establishing the importance of exploration and development at these levels. Reserves proved or indicated by the 9,000- to 10,000-foot fields and wells already brought in are assuming such proportions potentialities of major production at these depths no longer are generally questioned. Already production is being carried gradually to still greater depths, leading the way to more extensive deep drilling.

A survey of deep production on the Gulf Coast reveals there are 36 wells, representing 10 fields, which have been completed as producers at various depths below 9,000 feet. Of these, 9 are below 10,000 feet (1 below 11,000 feet); 10 at depths between 9,500 feet and 10,000 feet, and 17 between 9,000 feet and 9,500 feet. Addition of wells completed in 9,000-foot horizons but whose depths did not quite reach that level would swell this list.

Except for four, all these deep wells are reported on regular production with total daily recovery now above 18,000 bbls. The latter figure is significant in view of the production restrictions imposed by proration. This production has been increasing steadily and as additional wells are brought in further substantial gains are in order.

The most recent addition to the deep producing fields and wells is Texas Co. No. 1 Bayou Sale at Horseshoe Bayou, southern St. Mary Parish, Louisiana, completed August 12 at 10,863-73 feet. This well, the first test on the prospect, flowed on a 12-hour gauge at the rate of 1,152 bbls. daily of 37.7-gravity pipe line oil through a quarter-inch choke with 2,000 pounds pressure on the tubing. Bottom of the hole is 10,929 feet, the production being through perforations in the 7⅝-inch casing. Originally the hole was drilled to 12,261 feet, the greatest depth reached on the Gulf Coast. At that depth the well blew out with drill pipe stuck, caught fire and destroyed the rig. Since, the hole has been

WORLD PROGRESS IN DEEPER DRILLING



Courtesy The Lamp

California, 1929—First 9,000-foot test. Shell Oil Co. No. 1 Nesa, drilled in the Long Beach field to total depth of 9,280 feet. Completed as a dry hole.

California, 1930—First 9,500-foot test. Standard Oil Co. of California drilled No. 1 Mascot in the Midway field to 9,753 feet. Finally abandoned as a dry hole.

California, 1931—First 10,000-foot test. Chanslor-Canfield-Midway Oil Co. No. 2-A Hobson was drilled to 10,030 feet in the Rincon field. Plugged back to 7,479 feet and completed for 240 bbls.

Mexico, 1931—First 10,000-foot test drilled outside of United States. Penn-Mex Fuel Co. No. 35 Jardin, in the Tuxpam area, was drilled to 10,585 feet. Abandoned as a dry hole.

Texas, 1932—First 9,000-foot producing well. Continental Oil Co. No. 3-B University, in Big Lake field, produced 1,600 bbls. from 9,020 feet.

California, 1934—First 11,000-foot test. General Petroleum Co. drilled No. 1 Berry, in the South Belridge field, to 11,377 feet. Suspended at this depth.

Rumania, 1934—Only 11,000-foot test drilled outside of United States. Creditul Minier No. 1 Chitorani well in the Ploesti field was abandoned as dry at 11,096 feet.

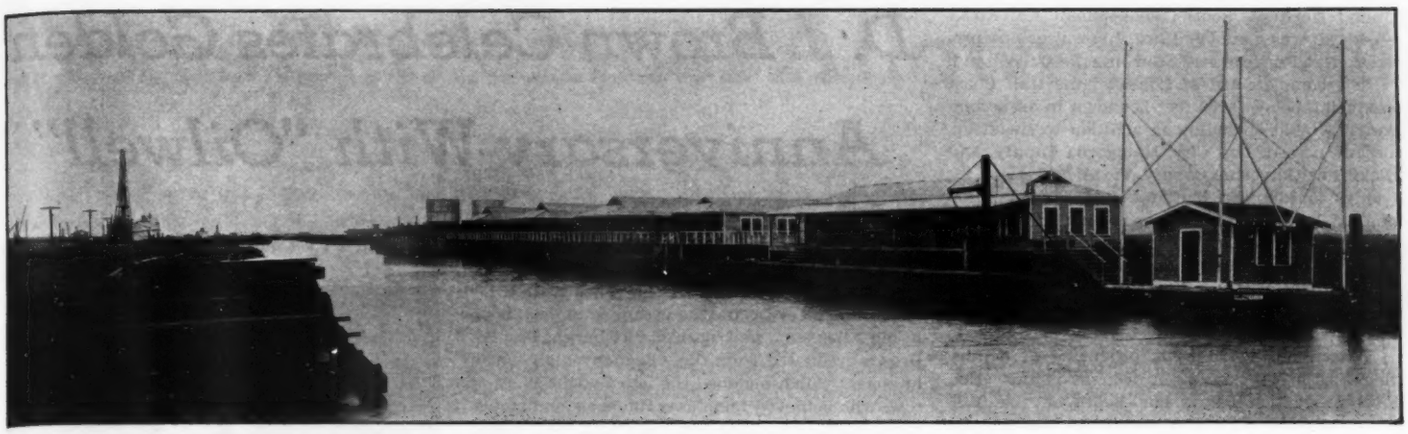
Texas, 1935—First 12,000-foot test. Gulf Oil Co. No. 103 McElroy, in the McCamey field, completed as a dry hole at 12,786 feet. Deepest test in the world.

Iran, 1936—First 10,000-foot well east of the Suez Canal. Anglo-Iranian Oil Co. No. 2 Pirgah, drilled in the Zeloi area, was abandoned at 10,026 feet.

Louisiana, 1937—First commercial 10,000-foot producing well. Texas Co. No. 5 Rigolette, in the La Fitte field, produced 1,606 bbls. of oil from 10,250 feet.

Louisiana, 1937—Deepest producing well. Humble Oil & Refining Co. No. 1 Ellender, in the Lirette field, produced 422 bbls. from 11,619 feet.

California, 1937—Second deepest producing well. Associated Oil Co. No. 12 McGonigle, in the Ventura Avenue field, completed good for 536 bbls. at 10,569 feet.



Texas Co. camp, erected on piling foundation, in marsh, Lafitte field

plugged back and a sidetracked hole drilled to the present depth. This is the second deepest producing well on the Gulf Coast.

Humble Oil & Refining Co. No. 1 Ellender, at Lirette, Terrebonne Parish, Louisiana, completed in May at 11,616 feet (total depth 12,165 feet), continues to hold the production depth record, not only for the Gulf Coast but the entire world. So far this is the only production below 11,000 feet. A well drilled by Continental Oil Co. at Abbeville, Vermilion Parish, Louisiana, encountered considerable gas and high pressures along with showings of oil at a total depth of 12,216 feet, but mechanical difficulties prevented completion in that horizon, and the hole was plugged back to a shallow sand and completed as a small producer.

The importance of the deep horizon at Lirette as a petroleum reserve has not yet been determined. Except for some old shallow gas wells, the Humble well is the first, and, so far, only test in the area. It had an initial production of 37 bbls. an hour through a quarter-inch choke with tubing pressure of 2,750 pounds. Daily production has been restricted to 175 to 200 bbls., and since completion water has made its appearance. The well at latest report was making from 25 to 30 per cent water. It is possible it may be too far down dip structurally.

Lafitte and Old Ocean

Substantial production is being developed in 10,000-foot horizons at Lafitte, Jefferson Parish, Louisiana, and Old Ocean, Brazoria County, Texas. The former field now has five wells producing from below 10,000 feet with a sixth well producing from the same horizon but with bottom at 9,974 feet, it having picked up the sand high structurally. Old Ocean has two wells below 10,000 feet with two others producing from the same horizon at 9,982 feet and 9,835 feet, respectively (the latter may be in a separate sand).

The Lafitte field, which represents the greatest concentration of production below 9,000 feet, has established itself as one of the most important crude reserves on the Gulf Coast. Fourteen wells, the shallowest 9,406 feet, have been completed. So far, there have been no failures, and the productive area extends 1½ miles east to west and a similar distance north to south. Daily output has been boosted to more than 12,000 bbls.

Production at Lafitte is obtained from two sands, the 10,000-foot sand and a 9,000-foot sand. Nine wells have been completed in the latter, or "shallow" sand, although one of these recently was deepened and completed in the 10,000-foot sand. This leaves eight wells still producing from the 9,000-foot sand, with six wells in the 10,000-foot sand. Both sands have proved highly prolific. Development of the 10,000-foot sand has been under way only since the latter part of 1936. Previous to that time drilling was limited to the 9,600-foot sand, in which the discovery well was brought in during May, 1935.

Texas Co., the sole operator, is carrying out an orderly development and production program, drilling on a 20-acre unit basis. As the leases are held in large tracts, the company has been able to limit its development to key wells in an attempt to feel out the productive limits.

Development of this deep production is an accomplishment of special interest due to the isolated marsh location which handicaps operations. The field is inaccessible except by water, and nowhere in the field is there any solid ground. All wells are drilled with large drilling barges, moved to locations through dredged channels. All other facilities, including tank battery installations, a gasoline plant, a pipe line pump station, and a large, modern camp, maintained by the company in the field, are built on either piling or matting foundations.

Deepest Lafitte

The deepest test so far drilled at Lafitte went to 10,942 feet. However, it was not completed at that depth, the hole being plugged back through casing perforations at 10,035 feet, which so far is the deepest production level in the field. As the wells are still in the Miocene, the field holds potentialities for production in the Oligocene and other lower horizons which are prolific producers in other parts of the Gulf Coast. Operators are of opinion present drilling equipment in the field is capable of going to depths of at least 15,000 feet in exploration of these lower horizons when occasion demands.

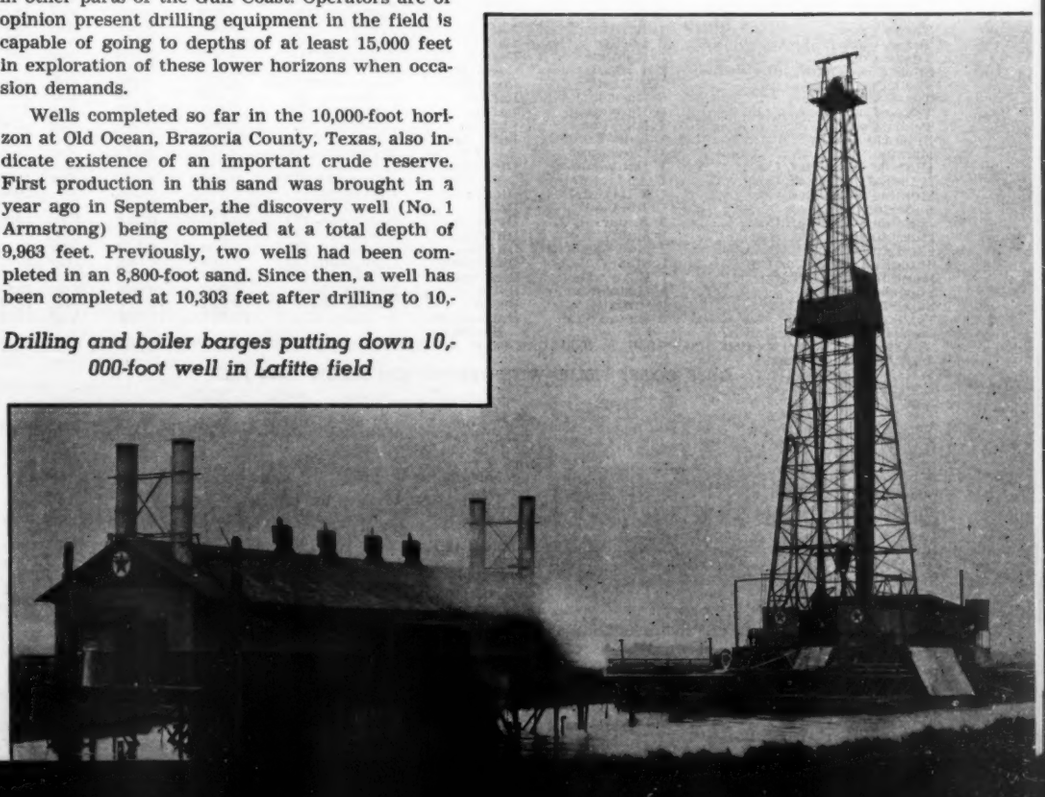
Wells completed so far in the 10,000-foot horizon at Old Ocean, Brazoria County, Texas, also indicate existence of an important crude reserve. First production in this sand was brought in a year ago in September, the discovery well (No. 1 Armstrong) being completed at a total depth of 9,963 feet. Previously, two wells had been completed in an 8,800-foot sand. Since then, a well has been completed at 10,303 feet after drilling to 10,427 feet; one of the 8,800-foot wells has been deepened to 10,059 feet getting production at 9,835 feet, and more recently a well has been completed at 10,401 feet, the third deepest on the Gulf Coast. The latter was drilled to 10,775 feet and completed through casing perforations at 10,401 feet.

Although first wells at Old Ocean were bothered with high gas pressures and high ratios, the more recent wells, further down dip in the horizon, have been more successful in developing production. With these completions daily output has increased to more than 1,500 bbls.

Latest additions to the fields with production below 9,000 feet have been Bayou Cocotriz, Terrebonne Parish, Louisiana; Lake Long, Lafourche Parish, Louisiana, and Buckeye, Matagorda County, Texas. At Bayou Cocotriz, the discovery well (No. 1-B Realty), completed by Shell Petroleum Corp., in February, was brought in at a total depth of 9,493 feet. Within the past several weeks, a second well, about 450 feet from the discovery well, has been completed at 9,513 feet. Considering the potential productivity of these two wells and the favorable showing made, an important field is indicated.

Lake Long was opened for production last June by Fohs Oil Co. No. 1 Lake Long, completed in a sand at 9,373 feet. Drilling of a second test has just been started.

Buckeye has a well producing from 9,982 feet, or only 18 feet short of 10,000 feet. This well,



Drilling and boiler barges putting down 10,000-foot well in Lafitte field

United North & South Development Co. No. 1 Stoddard, was completed last June. Previous production at Buckeye has been in a 7,800-foot sand.

The complete list of fields on the Gulf Coast producing below 9,000 feet is shown in an accompanying table, including in addition to the fields already named, Bay City, Matagorda County, and Dickinson, Galveston County, Texas, and Bosco, St. Landry and Acadia Parishes, Louisiana. Production at Dickinson and Bosco is found from 9,000 to 9,040 feet. At Bay City there is one well, the discovery well, completed as a producer at 9,370 feet, with total depth of 9,428 feet. Other wells completed in this field have been in shallower sands.

Fifteen of the 36 wells producing at depths below 9,000 feet have been brought in this year. First production below that depth on the Gulf Coast was opened during 1934 with the completion of two wells at Bosco, Acadia Parish, Louisiana. During 1935 nine wells were added. Ten more were added in 1936. Coastal Louisiana claims 22 of the wells against 14 for Coastal Texas. All the Coastal Louisiana wells are still in the Miocene at their final depths. Coastal Texas' deep wells are all in the Marginulina-Frio sections, encountered some distance below the Miocene sands.

There now are five active tests on the Gulf Coast below 10,000 feet. Sun Oil Co. No. 1 Ward, at Labelle, Jefferson County, has indicated existence of 10,000-foot production in that area. At a total depth of 10,046 feet, this test encountered high gas pressures and tried to blow out. It is fishing stuck drill stem. Two additional tests at Lafitte, Jefferson Parish, are down to the 10,000-foot pay horizon for completion. Other 10,000-foot active tests include Continental Oil Co. No. 1 Brookshire at Abbeville, Vermilion Parish, drilling at 11,000 feet; Texas Co. No. 1 State at Wax Lake, St. Marys Parish, fishing stuck drill stem, total depth 10,541 feet; and Superior Oil Co. No. 1 Butler at Bammel, Harris County, Texas, drilling below 10,375 feet. Six additional tests are drilling below 9,000 feet.

D. J. Brown Celebrates Golden Anniversary With "Oilwell"

D. J. Brown, vice president of the Oil Well Supply Co., is celebrating his golden "Oilwell" anniversary, 50 years of service, coincidentally with the company's seventy-fifth anniversary. It is believed this record is unique in supply annals. Born in old Allegheny, now part of Pittsburgh, Pa., Mr. Brown graduated from the Allegheny high school in a class which included the late Dwight W. Morrow, who achieved fame as a financier and statesman. Starting as office boy August 25, 1887, young Brown successively attained the positions of sales manager, treasurer, general manager and vice president of the company. Slender and short as a boy, he was "Jimmie" to the older men and "Jim" to his associates. To hundreds of "Oilwell" customers and friends he is "D. J."

To an unusual degree Mr. Brown has the gift of making, and keeping, friends. Throughout his half-century of service scores of his associates have gone to him for advice or other help in personal matters. Many a time when an employe returned to his work before fully recovering from illness D. J. laid a kindly hand on the man's shoulder and said: "Call it a day. Go home now and get some rest." Often he gathered up papers on the man's desk and attended to anything urgent himself. Seldom does he have a telephone conversation without injecting some pleasantry.

Now that D. J. has more leisure than formerly, he has acquired a home in the country. He has a fine residence among giant oaks. There he has a beautiful lawn of some four or five acres, dotted with shrubs and flower gardens, a pond of water lilies, and a rock garden. He knows every shrub and tree on the place and he spends as much time as possible in these tranquil surroundings. He has two handsome collie dogs that hardly allow him to get out of sight when he is at home.

D. J. BROWN

While not weighed down with business as he used to be, D. J. is mighty busy as vice president in charge at the "Oilwell" Pittsburgh office. There he is known by hundreds of the company's customers and esteemed by them as a friend.

PRODUCING WELLS COMPLETED BELOW 9,000 FEET ON GULF COAST

Company—	Well	Field	County or Parish†	Prod. depth (ft.)	Total depth (ft.)	Date comp.
Humble Oil & Ref. Co.	1 Ellender	Lirette	Terrebonne (L)	11,615	12,165	May, 1937
Harrison & Abercrombie	4 Bernard	Old Ocean	Brazoria (T)	10,401	10,775	Aug., 1937
Harrison & Abercrombie	3 Bernard	Old Ocean	Brazoria (T)	10,303	10,427	Mar., 1937
Texas Co.*	4 Lafitte	Lafitte	Jefferson (L)	10,092	10,092	Aug., 1937
Texas Co.	5 Rigolets	Lafitte	Jefferson (L)	10,035	10,942	Dec., 1936
Texas Co.	1 Milling	Lafitte	Jefferson (L)	10,020	10,040	Jan., 1937
Texas Co.	6 Lafitte	Lafitte	Jefferson (L)	10,018	10,386	May, 1937
Texas Co.	7 Rigolets	Lafitte	Jefferson (L)	10,006	10,406	July, 1937
United N. & S. Dev. Co.	1 Stoddard	Buckeye	Matagorda (T)	9,982	9,982	June, 1937
Texas Co.	5 Lafitte	Lafitte	Jefferson (L)	9,974	9,974	Oct., 1936
Harrison & Abercrombie	1 Armstrong	Old Ocean	Brazoria (T)	9,963	9,963	Sept., 1936
Harrison & Abercrombie	1 Bernard	Old Ocean	Brazoria (T)	9,835	10,059	July, 1937
Texas Co.	2 Lafitte	Lafitte	Jefferson (L)	9,640	9,640	Sept., 1935
Texas Co.	2 Rigolets	Lafitte	Jefferson (L)	9,598	9,606	Feb., 1936
Texas Co.	1 Lafitte	Lafitte	Jefferson (L)	9,556	9,572	May, 1935
Texas Co.	3 Lafitte	Lafitte	Jefferson (L)	9,555	9,555	Apr., 1936
Texas Co.	1 Rigolets	Lafitte	Jefferson (L)	9,568	9,568	Aug., 1935
Shell Pet. Corp.	2-B Realty	Cocotriz	Terrebonne (L)	9,513	9,513	Aug., 1937
Shell Pet. Corp.	1-B Realty	Cocotriz	Terrebonne (L)	9,493	9,493	Feb., 1937
Texas Co.	6 Rigolets	Lafitte	Jefferson (L)	9,476	9,476	Mar., 1937
Texas Co.	3 Rigolets	Lafitte	Jefferson (L)	9,455	9,455	Apr., 1936
Texas Co.	4 Rigolets	Lafitte	Jefferson (L)	9,402	9,406	July, 1936
Fohs Oil Co.	1 Lake Long	Lake Long	Lafourche (L)	9,373	9,406	June, 1937
Hammon Exp. Co.	1 Cleveland	Bay City	Matagorda (T)	9,370	9,428	Mar., 1936
Humble Oil & Ref. Co.	1 Danielson	Dickinson	Galveston (T)	9,140	9,360	Apr., 1935
Humble Oil & Ref. Co.	1 Anderson	Dickinson	Galveston (T)	9,127	9,127	Nov., 1935
Humble Oil & Ref. Co.	1-B Bayou Dev.	Dickinson	Galveston (T)	9,125	9,125	Nov., 1935
Superior Oil Co.	1 Johnson	Bosco	Acadia (L)	9,118	9,118	Oct., 1934
Humble Oil & Ref. Co.	2 Anderson	Dickinson	Galveston (T)	9,112	9,112	Feb., 1936
Humble Oil & Ref. Co.	1 Maley	Dickinson	Galveston (T)	9,110	9,110	Oct., 1936
Humble Oil & Ref. Co.	2 Maco Stewart	Dickinson	Galveston (T)	9,100	9,100	Aug., 1935
Stanolind Oil & Gas Co.	1 State	Dickinson	Galveston (T)	9,088	9,088	July, 1937
Humble Oil & Ref. Co.	1 Bayou Dev.	Dickinson	Galveston (T)	9,085	9,085	Sept., 1935
Superior Oil Co.	1 Hernandez	Bosco	Acadia (L)	9,040	9,040	Nov., 1935
Superior Oil Co.	1 Prejan	Bosco	Acadia (L)	9,024	9,034	Oct., 1934
Texas Co.	1 Bayou Sale	Horseshoe Bayou	St. Mary (L)	10,873	12,261	Aug., 1937

*Originally completed June, 1936, in 9,600-foot sand at total depth of 9,420 feet. †"L" indicates Louisiana; "T" indicates Texas.

GULF COAST FIELDS WITH PRODUCTION BELOW 9,000 FEET

Field—	County or Parish*	Wells below 10,000 ft.	Wells 9,500-10,000 ft.	Wells 9,000-9,500 ft.	Total wells	Approx. daily prod.
Bay City	Matagorda (T)	0	0	1	1	150
Bosco	Acadia (L)	0	0	3	3	200
Buckeye	Matagorda (T)	0	1	0	1	150
Cocotriz	Terrebonne (L)	0	1	1	2	1,500
Dickinson	Galveston (T)	0	0	8	8	500
Lafitte	Jefferson (L)	5	6	3	14	12,500
Lake Long	Lafourche (L)	0	0	1	1	800
Lirette	Terrebonne (L)	1	0	0	1	180
Old Ocean	Brazoria (T)	2	2	0	4	1,500
Horseshoe Bayou	St. Mary (L)	1	0	0	1	1,000
Total nine fields		9	10	17	36	18,280

*"T" indicates Texas; "L" indicates Louisiana.

Marketing Alcohol-Blends

(Continued from Page 39)

In the main the blends which have been sold have been the Agrol 5 grade. This means the principal blend has had an antiknock value equal to a blend of 5 per cent ethyl alcohol and 95 per cent 60-octane gasoline. It was designed to compete in antiknock rating with present refinery regular gasolines. Two distributors in Atchison, the Gold Bond Oil Co. and the Martin Oil Co., and one in Iowa, the Square Deal Oil Co., are now distributing Agrol 10, and the Winstun Oil Co., in Kansas City has just started distributing Agrol 15. There is an increasing interest in the sale of Agrol 10, which has an antiknock rating above that of present regular grades and slightly below that of present premium grades of refined gasoline. It seems likely that the bulk of the distribution will shift to this type, and particularly if the purchasing power of the farmers in the territory served is such that they will become interested in better quality fuels.

Kansas Demand Hearing

A market demand hearing to determine September daily allowable crude oil production in Kansas was held at Wichita Tuesday. The Bureau of Mines recommended daily production of 200,500 bbls. for September, an increase of 200 bbls. over the August allowable.

Texas September Allowable Cut But Exceeds Bureau Figure

By NEIL WILLIAMS

AUSTIN, Tex.—Allowable production for Texas, effective September 1, has been set by the Railroad Commission at 1,441,733 bbls., a reduction of 53,758 bbls. from August 1, and 110,001 bbls. under current production of 1,551,734 bbls. The new allowable, however, will be 28,133 bbls. greater than the Bureau of Mines recommendation for Texas during September.

The reduction does not come without warning to the Texas oil industry. Members of the commission individually have expressed opinion on various occasions that the state's August production is too high and that substantial cuts in allowable must be made. However, that the allowable factor of East Texas is not to be changed is a surprise, in view of testimony presented at the statewide proration hearing here last week.

Pressure Declines

V. E. Cottingham, chief engineer of the petroleum division of the commission, reported that average bottom-hole pressure of the East Texas field declined 13.71 pounds in the month from July 12 to August 11, inclusive. With an allowable production during that period of 14,599,035 bbls. (daily average allowable 470,936 bbls.), the drop in pressure per 1,000,000 bbls. of oil withdrawal was .935 pound. Average pressure August 12 was 1,141.35 pounds.

Mr. Cottingham expressed the opinion that the pressure drop was excessive and recommended that the present allowable factor of 2.32 per cent of the hourly potential be reduced. He stated the field's critical rate of withdrawal had been exceeded and by continuation of production at present levels or higher the rate of pressure drop would increase. He pointed out the critical rate of withdrawal had been determined to be 425,000 to 450,000 bbls. daily, and that the present daily production of the field, based on the allowable production of August 16, is 473,465 bbls., exclusive of water production totaling approximately 60,000 bbls. daily. This would make a total fluid withdrawal of more than 533,000 bbls. daily.

Increase in Water

Basing his calculations on the present allowable factor and the present rate of well completions, Mr. Cottingham predicted allowable oil production of the field on September 1 would be more than 475,000 bbls. He explained there had been no change in the allowable factor since June 21, 1936, and in that time 2,509 wells had been brought in, adding 49,366 bbls. of oil production, which, with the increase in water production, would make a total fluid production increase since June 21, 1936, of more than 100,000 bbls. daily. He expressed opinion that the increase in water production had not been alarming, and that out of a total of 23,299 wells in the field August 16, only 2,560 were making any water.

Following Mr. Cottingham's report, operators at the hearing supposed a reduction in East Texas allowables was to be expected.

In announcing the general reduction in allowables for the state, C. V. Terrell, chairman of the commission, stated the cut was made to conform to the seasonal decline in demand. "The vacation season ends," he said, "pretty generally on Labor Day. School starts in September, and the family automobile comes home from the highways to more restricted uses."

Mr. Terrell explained that northern and eastern markets consumed 84 per cent of Texas crude, and that climatic conditions in the areas of those markets governed the Texas demand.

The September 1 basic allowable production by districts compared with the allowable of August 1 and August 18 follow:

TEXAS ALLOWABLE PRODUCTION

District—	Sept. 1 (bbls.)	Aug. 1 (bbls.)	Aug. 18 (bbls.)
Southwest Texas	245,534	246,826	272,895
Gulf Coast	202,749	222,449	230,026
East Central Texas	78,317	87,124	87,555
Rodessa	32,617	37,718	42,463
East Texas	475,308	470,734	473,465
West Central Texas	71,269	71,302	73,621
West Texas	193,469	213,498	222,410
North Texas	64,250	64,440	66,363
Panhandle	78,230	81,400	82,936
Total	1,441,733	1,495,491	1,551,734

September's Recommendation 46,400 Bbls. Above August

The daily average production of crude oil estimated by the Bureau of Mines to meet the demand in September, 1937, is 3,509,000 bbls., or 46,400 bbls. higher than the daily average estimated for August, 1937. This is 476,900 bbls. (16 per cent) higher than the actual daily production for September, 1936, but only 9 per cent higher than the actual demand for that month.

Current situation.—Crude oil production during the five weeks June 26 to July 31 averaged about 3,571,000 bbls. daily. During that period crude oil stocks increased 571,000 bbls. net, of which 192,000 bbls. was in domestic grades, indicating a daily demand for domestic crude during this period of 3,565,000 bbls., a new record.

Motor Fuel

Domestic demand.—The domestic demand for motor fuel in September has been estimated as 48,700,000 bbls., or 10 per cent higher than the actual demand for September, 1936.

Exports.—Exports of motor fuel for September have been estimated as 3,000,000 bbls.; this is 100,000 bbls. over the August estimate in line with the upward trend in this factor during recent months.

Stocks.—Stocks of finished and unfinished gasoline amounted to 75,053,000 bbls. on June 30, 1937. According to the American Petroleum Institute gasoline stocks were reduced about 5,000,000 bbls. during July, which would bring stocks to approximately 70,000,000 bbls. as of July 31. The bureau estimates a withdrawal of 2,800,000 bbls. of gasoline from stocks during September, compared with an estimate of 5,000,000 bbls. for August. Should all these estimates prove essentially correct, stocks of September 30 would amount to 62,200,000 bbls., or about 4,400,000 bbls. above September 30, 1936.

Gasoline production.—Benzol and "direct" sales and losses of natural gasoline have been estimated as 1,000,000 bbls., making the estimated production of gasoline 47,900,000 bbls., or 1,597,000 bbls. daily. This is distributed among the districts as follows (thousands of barrels): East Coast, 7,000; Appalachian, 1,780; Indiana-Illinois, 8,330; Oklahoma, 3,150; Kansas-Missouri, 2,730; Texas Inland, 3,740; Texas Gulf, 10,840; Louisiana Gulf, 1,510; North Louisiana-Arkansas, 910; Rocky Mountain, 1,140; California, 6,770.

Crude Petroleum

Runs to stills.—Natural gasoline consumption at refineries in September is estimated as 7.4 per cent of the total gasoline required, or 3,540,000 bbls. The yield of straightrun and cracked gasoline is estimated as 44.5 per cent, which, when applied to the estimated straightrun and cracked gasoline production of 44,360,000 bbls. gives requirements as 99,580,000 bbls., a daily average of 3,319,000 bbls.

Imports.—Foreign crude run to stills is estimated as 2,900,000 bbls., the same as for August.

Exports, fuel and losses. — Crude oil exports have shown a strong upward trend during the past few months. Whether the high rate of exports will be continued is problematical, nevertheless it was thought advisable to increase the estimate by 400,000 bbls. over the August estimate to 5,600,000 bbls. The estimate for crude oil burned as fuel and losses has been increased in accordance with the usual seasonal change to 3,000,000 bbls., 100,000 bbls. higher than August.

TABLE 1—ESTIMATE OF REQUIRED CRUDE OIL PRODUCTION BY STATES

(Daily averages in barrels)

State—	Forecast Sept., 1937	Forecast Aug., 1937	Actual production June, 1937
Texas	1,413,600	1,395,200	1,391,400
California	638,200	612,800	663,800
Oklahoma	633,600	633,400	638,900
Louisiana	247,900	253,900	257,100
Kansas	200,900	200,500	201,300
New Mexico	101,400	100,800	111,000
Pennsylvania	53,600	53,600	53,800
Wyoming	55,900	52,800	47,900
Michigan	40,400	39,900	40,600
Arkansas	29,900	29,100	27,800
Montana	18,200	17,700	17,600
Kentucky	17,000	16,800	16,600
New York	15,800	15,200	16,100
Illinois	14,600	13,000	15,400
West Virginia	10,300	10,700	11,100
Ohio	10,500	10,300	10,600
Colorado	5,000	4,900	3,600
Indiana	2,500	2,300	2,500
Total	3,509,300	3,462,900	3,527,100

Petroleum Division of American Chemical Society Announces Interesting Program

The program of the Petroleum Division of the American Chemical Society which group will hold its next meeting in Rochester, N. Y., September 6 to 10, inclusive, contains subjects of practicable and highly scientific interest. More than usual attention is being given to the synthesis of petroleum resins and chemicals. Under the chairmanship of J. C. Morrell, of the Universal Oil Products Co., papers covering the utilization of petroleum hydrocarbons, the isolation and identification of individual petroleum hydrocarbons and the preparation of resins from the reaction between sulfur dioxide and olefins will be presented.

Division of Petroleum Chemistry

J. C. Morrell, chairman; C. R. Wagner, secretary; Frank Henry, local assistant.

Monday Morning and Afternoon (Sept. 6) Symposium on the Chemical Utilization of Petroleum Hydrocarbons

Frank C. Whitmore, presiding.

9:00—1. Gustav Egloff and J. C. Morrell. Petroleum as Source Material for Chemical Derivatives.

9:30—2. C. O. Tongberg, W. J. Sweeney, and M. R. Fenske. Hydrocarbons in Virgin Naphthas.

9:50—3. Hans Tropsch, Charles L. Thomas, Gustav Egloff, and J. C. Morrell. Olefins and Conjugated Dienes from Gas Oil.

10:10—4. Wallace A. McMillan. Determination of Butenes in Refinery Gases.

10:30—5. A. J. Paik, Sherlock Swann, Jr., and D. B. Keyes. A Study of Catalysts for the Equilibrium, Ethylene-Water-Ethanol.

10:50—6. T. W. Evans, K. R. Edlund, and M. D. Taylor. The Direct Synthesis of Esters from Olefins and Organic Acids.

11:10—7. R. D. Snow and F. E. Frey. Reaction of Sulfur Dioxide with Olefins.

11:30—8. F. R. Russell and H. C. Hottel. The Rate of Polymerization of Ethylene in the Gas and Liquid Phase.

11:50—9. L. A. Monroe and E. R. Gilliland. Polymerization of Propylene by Dilute Phosphoric Acid.

2:00—10. Rush Fox McCleary with Ed F. Degering. A Study of the Reaction Mechanism for the Nitration of the Paraffin Hydrocarbons.

2:15—11. H. B. Haas and J. A. Patterson. Nitration of *n*-Pentane.

General Meeting

J. C. Morrell, chairman.

2:30—12. Charles L. Thomas, Herman S. Bloch and James Hoekstra. The Proximate Analysis of Gasoline.

3:00—13. R. C. Gunness. Column Performance in the Rectification of Petroleum.

3:30—14. Joseph D. White and Augustus R. Glasgow, Jr. The Separation of the Three Methyloctanes from Mid-Continent Petroleum.

3:50—15. R. W. Crary and M. M. Holm. Recovery of Mercaptans from Cracked Naphtha Fractions.

4:20—16. R. I. Mahan and J. R. Bailey. Recent Advances in the Chemistry of Petroleum Bases.

Tuesday Morning and Afternoon (Sept. 7) Symposium on Characteristic Properties of Hydrocarbons and Their Derivatives as Related to Structure

Thomas Midgley, Jr., presiding.

9:00—17. J. Smittenberg, H. Hoog, and R. A. Henkes. Freezing Points of a Number of Pure Hydrocarbons of the Gasoline Boiling Range and Some of Their Binary Mixtures.

9:30—18. W. R. van Wijk. Viscosity of Liquids.

10:00—19. Aristid V. Grosse. Refractive Indices at Low Temperatures.

10:20—20. R. L. Smith and K. M. Watson. Boiling Points and Critical Properties of Hydrocarbon Mixtures.

11:00—21. Frederick D. Rossini. The Heats of Formation of the Simple Organic Molecules.

11:30—22. Johannes H. Bruun, Mildred M. Hicks-Bruun, and W. B. Mason Faulconer. Isolation of Pure Isomeric Hexanes from Natural Gas, Including the Determination of Their Physical Properties and the Phase-Equilibrium Diagram of the Condensed System *n*-Heptane-2-Methylpentane.

2:00—23. W. B. Kay. A Study of the Liquid-Vapor Phase Equilibrium Relations in the Ethane-*n*-Heptane System.

2:30—24. F. R. Russell and H. C. Hottel. The Compressibility of Liquid Naphthalene.

2:50—25. W. F. Seyer and R. D. Walker. The Chemical and Physical Properties of Dicyclic Naphthenes. I. Cis and Trans Decahydronaphthalene.

3:10—26. W. F. Seyer. The Mutual Solubilities of Hydrocarbons. II.

General Meeting

J. C. Morrell, chairman.

3:30—27. R. F. Marschner. Thermal Decomposition of *n*-Octane.

4:00—28. Aristid V. Grosse and Vladimir N. Ipatieff. The Alkylation of Paraffins with Olefins. The Identification of the Paraffins Formed.

6:00—Division dinner, University Club.

Thursday and Friday (Sept. 9 and 10) Symposium on Gaseous Combustion

Michigan Oil Association

SAGINAW, Mich.—Directors of the Oil and Gas Association of Michigan have not yet filled the office of executive secretary vacated by the resignation of Henry G. Hunt. It is unlikely a successor will be named until the September meeting or, possibly October. Meantime the assistant secretary, Maurice A. Guenin, is in charge.

THE MARKETS*

CRUDE OIL: *It is anticipated that further changes in posted schedules will await developments in September when an effort will be made to reduce production under the August levels. Certain buyers have indicated that if schedule reductions fail to materialize they will do their own prorating, reducing purchases to current requirements. Considerable spot and contract crude is available at several points in the Mid-Continent.*

REFINERY: *End of main gasoline consuming season finds supplies more freely available than they were earlier in the summer with principal weakness centering in Middle West and Mid-Continent. Gasoline tankcar quotations generally unchanged. Seasonal improvement in movement of kerosene and some grades of fuels.*

TANK-WAGON AND SERVICE STATION: *No important changes in schedules for gasoline and kerosene.*

FINANCIAL: *Oil stocks react with general market. Sales decline. Average of 30 representative stocks for week ending August 21: High, 43.43; low, 40.89; close, 41.28. Week ending August 14: High, 43.44; low, 41.76; close, 43.03.*

**Detailed information in market section.*

Service Station Is Glutted By Sit-down of Dealers

A gasoline station at Reading, Pa., had the greatest number of customers in its history for a half hour but made little profit, according to an Associated Press dispatch.

Twenty automobiles drove to the station.

"One gallon, please," said the first driver, "and I would appreciate it if you would check the tires and water, look at the oil supply, clean the windshield and wipe off the back window."

The second driver said the same. So did the third, the fourth, the fifth.

It was hard work for the attendant. Finally, he quit.

"I'll be darned if I'm going to do this much work for the money I'm being paid," he said as he walked to the telephone to call his boss. "I'll be back."

"Don't worry," the motorist replied cheerfully. "We'll be here."

The motorists were members of the Reading Service Station Dealers Union, led by Miles McDonald. They were there, he said, because the station was selling gasoline below the established price of 18½ cents.

By the time the owner arrived, automobiles were stretched along for a block. The congested traffic brought the police and the police brought an invitation from Chief Walter Scheaerer that the discussion be continued in his office.

Half an hour later prices at the station went back to standard. Traffic ran smoothly and the attendant settled down to the customary routine.

Important Tests Disappoint

Two very important Oklahoma wildcats proved disappointing on early tests this week, but a third outpost that has received little attention was showing as a pool opener. Carter Oil Co. and others No. 1 Harley, C NE NE section 24-2s-4w, in southeastern Stephens County, showed only 25 to 30 bbls. of distillate with 2,000,000 feet of gas a day when tested, and was to be acidized. It is at a total depth of 8,153 feet. Carter Oil Co. and others No. 1 Crissman, C W half SW NW section 16-25-3w, Grant County, which caused a furor when it showed oil on a drill-stem test, showed salt water with only a small amount of oil when bailer was run to bottom. The crew was to bail the hole dry for a Schlumberger test. The apparent pool opener was Indian Territory Illuminating Oil Co. and others No. 1 Graham, NW SW NE section 1-3s-19w. Tillman County, which had a hole full of high-gravity oil from Canyon lime at 3,074-81 feet, total depth.

Geological Field Trip

The Kansas Geological Society will hold its eleventh field conference on September 3 to 6, both inclusive, during which the Pennsylvania rocks of southeastern Kansas and northeastern Oklahoma will be studied and discussed. About 100 geologists will take part in the conference and trip, which will start at Pittsburg, Crawford County, and end at Sedan, Chautauqua County, Kansas. J. L. Carlough of Wichita, Kans., is chairman of the committee on arrangements.

Used Car Sales Gain

Sales of used motor cars purchased on the installment plan through finance companies during the first six months of this year show a gain of 12 per cent over sales during the first half of 1936, according to the Bureau of the Census. Statistics from 738 organizations show that during the first six months those firms financed a total of 2,586,499 used cars, compared with 2,231,579 for the first half of 1936.

Exports This Year Will Surpass Record Established in 1929

By H. STANLEY NORMAN

NEW YORK, Aug. 24.—Petroleum exports from the United States this year will surpass the existing record of 163,120,000 bbls. set in 1929, if the rate for the first six months is maintained and if trends of the past three years prevail, during which the last half shipments have exceeded the first half by substantial margins.

Through the first six months of 1937, petroleum exports from the United States totaled 77,068,000 bbls., divided 28,445,000 bbls. of crude and 48,623,000 bbls. of refined products. Export shipments during the first half of this year are approximately 20 per cent greater than during the same period in 1936 when a total of 61,595,000 bbls. moved abroad. Substantial increases have been registered in all liquid petroleum exports during the first half of this year, compared to 1936. Crude oil exports totaled 28,445,000 bbls. from January through June this year in contrast to 22,621,000 bbls. for the same period last year. Motor fuel shipments totaling 17,249,000 bbls. for the first half of this year are 3,869,000 bbls. greater than for the first six months of 1936; kerosene exports are up 936,000 bbls. and fuel oil gained 2,822,000 bbls. The gain in fuel oil exports was confined mostly to gas oil and light distillates which increased from 9,814,000 bbls. exported in the first half of 1936 to 13,538,000 bbls. the first six months of this year. Lubricating oil exports gained 1,206,000 bbls., reaching a total og 5,453,000 bbls. for the first half of 1937. Last year when exports totaled 130,016,000 bbls. for the full 12 months, 52.6 per cent of the shipments developed from June 30 to December 31. In 1935 the increase of last half business over the first half was even more impressive. However, the fact that about 56.5 per cent of the petroleum exports for 1935, totaling 128,987,000 bbls., developed after turn of the mid-year, probably is due to the fact that consumption and business in general started making real strides to higher ground after June 30. Although the total of petroleum exports this year may exceed the record set in 1929, there will be one outstanding difference.

In 1929, only about 16.2 per cent of the total petroleum exports were crude oil, whereas so far this year crude has made up about 36.9 per cent of the total shipments. This appears the inevitable result of nationalistic policies in many of the foreign countries and also of the U. S. levy of taxes on imports.

In order to equal the record of petroleum exports established in 1929, the United States must export 86,152,000 bbls. during the last half of the year. Some observers hold to the view that the curve of exports will have a tendency to level off during remainder of the year and think that the last half total will be more nearly equal to the first six months than has been proven the case in the past three years.

In 1934 there was only a slight difference in the total of exports for the two halves of the year. During the first half of that year there were 56,108,000 bbls. shipped in the first half and 58,399,000 bbls. in the second half. In Table No. 1, crude oil exports during the first half of this year shown as 28,445,000 bbls. by the Bureau of Mines, have been approximately 20.5 per cent higher than for the same period in 1936 and the increase in refined products shipments is nearly as large.

The extent to which petroleum exports have regained the ground lost from 1929 to the low point reached in 1933 is shown in Table No. 2. While the increase in petroleum exports has been steady since 1933, the total for 1936 was still 1,934,000 bbls. short of the shipments abroad 10 years earlier in 1926.

Total exports for the past 10 years, that is crude oil and refined products, are shown below in barrels:

Year—	Total liquid exports
1936	130,016,000
1935	128,987,000
1934	114,507,000
1933	96,727,000
1932	103,275,000
1931	124,394,000
1930	156,499,000
1929	163,120,000
1928	154,957,000
1927	141,649,000
1926	131,950,000

TABLE 1—U. S. PETROLEUM EXPORTS

First Six Months 1937

Month—	Crude oil	Refined products	Motor fuel	Kerosene	Gas oil distillate fuel	Residual fuel oil	Total fuel oil	Wax	Lubricants
January	3,596,000	7,935,000	2,978,000	637,000	2,168,000	1,401,000	3,569,000	17,798,000	660,000
February	3,777,000	6,736,000	2,640,000	819,000	1,511,000	715,000	2,226,000	23,373,000	915,000
March	3,196,000	7,014,000	2,426,000	448,000	1,925,000	1,359,000	3,284,000	22,820,000	717,000
April	4,899,000	8,763,000	2,787,000	791,000	2,511,000	1,450,000	3,961,000	19,025,000	1,040,000
May	6,796,000	9,404,000	3,333,000	664,000	2,790,000	1,254,000	4,044,000	25,777,000	1,141,000
June	6,181,000	8,771,000	3,085,000	623,000	2,633,000	1,183,000	3,816,000	19,122,000	980,000
Total 6 months	28,445,000	48,623,000	17,249,000	3,982,000	13,538,000	7,362,000	20,900,000	127,915,000	5,453,000

First Six Months 1936

January	3,067,000	7,095,000	2,572,000	508,000	.....	.....	2,996,000	18,146,000	811,000
February	3,474,000	5,378,000	1,668,000	475,000	.....	.....	2,624,000	14,886,000	427,000
March	3,155,000	5,777,000	1,615,000	454,000	.....	.....	2,583,000	17,445,000	900,000
April	3,743,000	6,282,000	2,532,000	517,000	.....	.....	2,451,000	12,790,000	583,000
May	4,390,000	7,836,000	2,702,000	406,000	.....	.....	3,645,000	16,138,000	900,000
June	4,792,000	6,606,000	2,291,000	686,000	.....	.....	2,779,000	11,495,000	626,000
Total 6 months	22,621,000	38,974,000	13,380,000	3,046,000	9,814,000	7,264,000	17,078,000	90,900,000	4,247,000

First Six Months 1935

January	2,369,000	6,414,000	2,133,000	722,000	.....	.....	2,547,000	15,701,000	844,000
February	2,804,000	3,826,000	1,248,000	463,000	.....	.....	1,479,000	14,554,000	414,000
March	3,281,000	6,618,000	2,582,000	561,000	.....	.....	2,343,000	21,900,000	821,000
April	3,776,000	4,254,000	1,467,000	523,000	.....	.....	1,335,000	18,428,000	689,000
May	4,613,000	5,203,000	2,147,000	499,000	.....	.....	1,769,000	15,375,000	599,000
June	5,590,000	7,360,000	3,222,000	634,000	.....	.....	2,464,000	17,757,000	731,000
Total 6 months	22,433,000	33,675,000	12,799,000	3,402,000	.....	.....	11,937,000	103,715,000	4,098,000

TABLE 2—TEN YEARS' SUMMARY U. S. PETROLEUM EXPORTS

	Crude oil	Refined products	Motor fuel	Kerosene	Gas oil-fuel oil	Wax
1936	50,174,000	79,832,000	27,831,000	6,886,000	34,280,000	187,342,000
1935	51,430,000	77,557,000	30,613,000	6,651,000	28,948,000	229,905,000
1934	41,127,000	73,380,000	24,686,000	9,781,000	28,605,000	198,958,000
1933	36,584,000	70,143,000	29,321,000	8,959,000	20,563,000	247,769,000
1932	27,393,000	75,882,000	35,438,000	11,044,000	19,994,000	235,304,000
1931	25,535,000	98,859,000	45,716,000	12,712,000	29,231,000	290,527,000
1930	23,705,000	132,794,000	65,575,000	16,884,000	36,450,000	292,973,000
1929	26,401,000	136,719,000	62,059,000	20,022,000	39,151,000	319,324,000
1928	18,966,000	135,991,000	53,412,000	22,034,000	44,427,000	.....
1927	15,844,000	125,805,000	44,951,000	19,537,000	47,391,000	.....
1926	15,407,000	116,543,000	43,769,000	22,248,000	38,351,000	.....

Retail Price-Fixing Law Is Not Oil-Marketing Panacea

NEW YORK, Aug. 23.—Federal approval of the retail price-fixing laws in 42 states does not appear to offer a panacea for the past, present or future ills of the marketing division of the petroleum industry. This consensus was given or implied by New York oil executives and their legal departments after a cursory examination of the Tydings-Miller measure.

Ramifications of petroleum product prices are so great and so difficult to trace and shading so irrepressible that oil men see little advantage to be gained from federal and state approval of fixing levels at which retailers must sell branded products. There seems to be no inclination among refiners to saddle their retail dealers with unwieldy rules and regulations, even though passage of the bill validating resale contracts may mean emasculation of the antitrust law.

Indifference of oil executives was construed as evidence that supply and demand plus competitive conditions are the basic factors in determining gasoline and oil prices. That the fair price laws could be applied to oil marketing seems unquestioned. Several changes in practice might be required. All products so protected must bear a name or trade-mark.

The New York law then sets out that the vendor may stipulate at what price his trade-marked or named commodities shall be sold and lists specific exemptions including close-out sales, disposal by any government agent, etc. The Tydings-Miller measure draws a restriction preventing manufacturers or producers from contracting among themselves.

While the Tydings-Miller bill appears to have no bearing on the government's pending case at Madison, it may halt the department of justice in some of the current investigation activities which a few weeks ago were said to be going ahead in nearly all parts of the country.

the OIL AND GAS JOURNAL

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No Mystery About It

All these familiar investigations of the petroleum industry, like that in Pennsylvania, start out with the assumption that there is something mysterious about the oil business which, if ferreted out, will make a sensation. But when the facts are revealed the supposed mystery has disappeared.

The federal government itself, through congressional investigation and during the NRA, went very thoroughly into the cost of producing and refining crude oil. There are considerable differences in the cost of producing oil from various depths and varying conditions in the producing horizons. Manufacturing costs differ between the more efficient plants and those less favorably situated. But these are not of sufficient importance to make a fraction of a cent difference in the price of the finished product.

Transportation costs by pipe line for both oil and gasoline have been investigated for various distances. When the railroad is used the rates have been set beyond control of the oil industry. Tank-wagon transportation costs are known and easily determined.

In retail marketing we have all types of services; some elaborate, some combined with other services with variations in volume. Gasoline distributing costs in these several types of stations do not vary widely.

Anyone familiar with accounting and the breakdown of the industry's operations can very closely approximate the delivered cost at any place at any given time. Such an investigation should start with production and follow through refining, transportation and merchandizing. Some operators are more fortunate than others but representative figures are easily obtainable. These data will show that the industry's profits are dependent on volume and not high prices.

There is nothing secret or sinister about the operations of the oil business differentiating it from any other, nothing to excuse these recurrent sensationalized investigations which have never found anything to justify their proceedings.

Meanwhile, the most satisfactory proof of the efficiency and reasonableness of the oil industry's service to the public is to be found daily at the filling station where the price of gasoline has been for years and is today far below the comparable cost of all commodities.

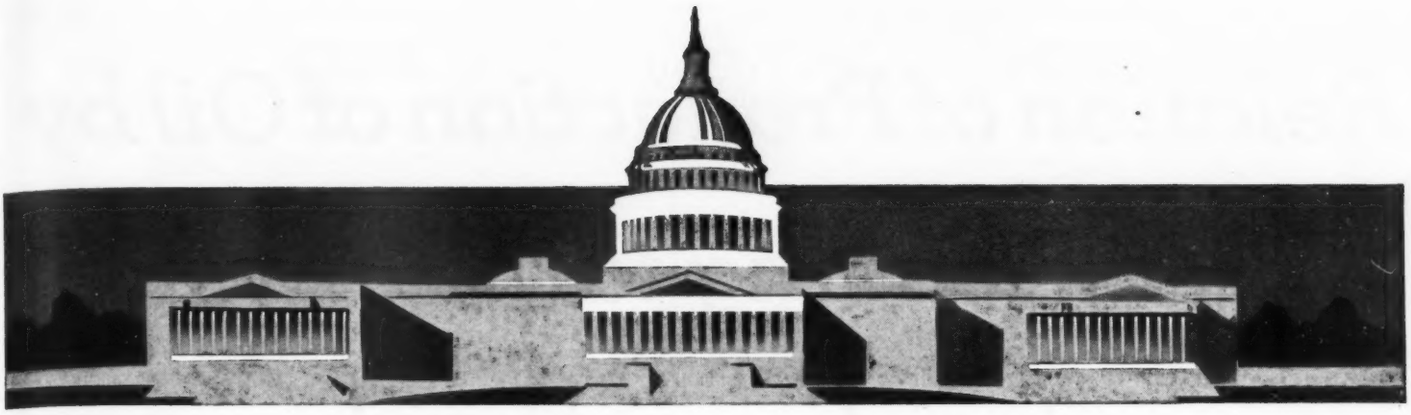
Instead of waiting until some investigating body tries to pin something on it, why should not the oil business keep the public currently informed of the facts in the case? It can anticipate these attacks by explaining when changes in price are necessary just why they are neces sary, taking into consideration competitive conditions and the fact that costs are going up on everything.

President W. S. Farish, of the Standard Oil Company (N. J.), sizes this up effectively when he says "people are interested in and have a right to know what makes the things they buy cost what they do."

In announcing a policy of accompanying any announcement of an important adjustment in the price of leading products with a statement of the reasons that have made it necessary, Mr. Farish said:

"Many observers believe the time will come when the principle of fair prices openly arrived at will be as generally accepted as the annual stockholders report. Understanding and goodwill are the best insurance known against prejudice; fair and open dealing the best guarantee for continued confidence and friendship.

"Petroleum is a business with many ramifications. But, by and large, it is supply and demand, competition, raw material costs, manufacturing costs, wages and taxes —all the old familiar friends we met in high school economics—that chiefly influence the price of gasoline, as they do that of any other product."



Retail Price Fixing Law May Apply to the Oil Business

By HENRY D. RALPH

WASHINGTON, D. C., Aug. 23.—Contracts fixing the retail price of gasoline may now be legally used in 42 states as the result of President Roosevelt's reluctant approval of the so-called Tydings-Miller resale price rider which permits the producer of a trade-marked article to make contracts with his dealers fixing the resale prices in states where such contracts are legal under state laws. Resale price contracts are now legal in every state except Texas, Mississippi, Alabama, Missouri, Vermont, Delaware, and the District of Columbia. In Delaware the governor recently vetoed a resale price bill and in Vermont the legislature rejected one, but in the other four states a resale price bill has been approved by one house of the legislature and a bill applying to the District of Columbia is pending in congress.

In signing the bill the president denounced the practice of attaching unrelated riders to revenue bills and declared he signed the bill with great hesitation because it weakens the antitrust laws. He hoped it would not be as harmful as many people predicted.

While primarily designed to stop the use of packaged merchandise as loss leaders, the bill may be applied by producers of any article capable of being trade-marked or branded, including gasoline, fuel oil, road materials, lubricating oil, and automobile accessories. The law is entirely voluntary and only time will tell how many producers will care to take advantage of it. The new law gives a producer complete control of the distribution of his products, and he can fix both wholesale and retail prices and wholesaler and retailer margins, and can prevent price cutters from obtaining his goods. Under the terms of practically all the state laws a resale price fixed by contract with a single distributor binds all competing dealers to adhere to the same prices even though they do not enter similar contracts. Such contracts, however, must be purely between a producer and his own dealers, and the act specifically prohibits agreements between competing producers or competing distributors to fix uniform prices or agree on price schedules.

In the oil business the Tydings-Miller law may be used by major companies to require filling stations to maintain a uniform price and to take the full retail margin allowed them. In this way the law may put an end to many local price wars, but it will not permit refiners to agree among themselves as to gasoline prices nor will it prevent a major company from changing its prices or cutting the prices for all its dealers in a price war with another company. The law can also be used by retailers and jobbers to force refiners to fix prices that will give them adequate dealer margins, although if such action is taken in concert there is a danger of running afoul of the conspiracy provisions of the antitrust laws. The law will also be used to a considerable extent to prevent price cutting of packaged lubricants, tires, automobile accessories, and miscellaneous articles sold through filling stations.

Officials of the Department of Justice and the Federal Trade Commission are much concerned over the effect of the Tydings-Miller act on pending and future antitrust prosecutions, for many antitrust cases have involved attempts of manufacturers to control retail distribution and retail prices. Such cases will now have to be dropped where this is the only charge, and other cases will have to be modified, although the antitrust laws still apply where there is any allegation of conspiracy or concerted action among competitors. Passage of the law is expected to have no effect on the pending Madison indictments in the oil industry since that case involves allegations of conspiracy among refiners.

Tidal Oil Lands

The senate has passed and sent to the house the Nye resolution directing the attorney general to start court proceedings to establish the title and possession of the government to all petroleum deposits underlying tidal lands between the low-water mark and the 3-mile limit, and to eject all persons trespassing or removing petroleum from them. The Nye measure was originally introduced as a bill declaring such lands to be a part of the public domain and establishing them as General Naval Petroleum Reserve No. 1, and this bill had the endorsement of the navy department on the ground that under the common law such tidal lands are conceded to be part of the public domain. The senate committee on public lands decided a better approach would be a resolution directing the attorney general to establish the government's title to such lands and to eject all persons exploiting petroleum from them. The bill has not yet been considered by the house.

Stream Pollution Bill

A threat of drastic restrictions on oil companies permitting refuse of any nature to flow into navigable streams was narrowly averted when congress adjourned without completing action on the stream pollution bill. In a last-minute maneuver the senate rewrote the Vinson bill which had passed the house, but the house conferees refused to accept the revision and decided to let the entire matter rest until next session.

The Vinson bill provides for creating a Division of Water Pollution Control in the Public Health Service charged with the duty of studying stream pollution and cooperating with state agencies in drafting plans for reduction of pollution. The bill authorizes appropriations of $1,000,000 per year for federal and state investigations and makes both public and private agencies eligible for federal loans and grants for construction of works for treatment of sewage and industrial wastes, but contains no prohibition or penalties. The senate added a number of provisions taken from the more drastic Lonergan bills. Under the most important of these, congress would declare it to be a public and common nuisance to discharge or deposit any waste, or other substance, whether in a solid, gaseous, or liquid state, into any of the navigable waters or into any tributary from which it may flow or be carried into any navigable stream in violation of regulations promulgated by the Public Health Service if such waste is or may be injurious to human health or to any other form of life, including aquatic life or migratory birds, or impairs in any manner the utility of such waters for navigation purposes. After three years the attorney general could bring an injunction suit against any city, corporation, or person to prevent or abate any such nuisance. No criminal penalties are provided, but such an injunction could be as sweeping and drastic as the federal courts might determine. This section would not limit the right of any other person or public body to bring damage suits on account of pollution of any waters or for abatement of pollution by any industry. A provision gives consent to compacts between states for prevention of pollution.

Relation of Production of Oil by Water-Flooding to the Physical Characteristics of Sand

By
CHARLES R. FETTKE
Professor of Geology
Carnegie Institute of Technology

The process of water-flooding consists of applying water under pressure to the oil-bearing horizon through water-intake wells so located that the bank of oil, which accumulates ahead of the advancing water as the latter permeates the sand, is forced toward producing wells. The "five-spot" arrangement, in which each producing well is surrounded by four intake wells forming the corners of a square, and occasionally the "seven-spot," in which each producing well is surrounded by six intake wells forming the corners of a hexagon, are the patterns at present used.

In laying out a pattern for a flooding operation, no attention is paid to the location of old wells on the property. These are either pumped along with the new producing wells until they are watered out or they are plugged. Occasionally an old well, if it happens to fit rather closely into the pattern, may be cleaned out and used either as a producing or an intake well, depending upon its location, instead of drilling a new well.

Typical Results of Water-Flooding

The production data for several different types of floods are summarized in Table 1. Their approximate locations are shown in Figure 1 of the first article of this series. Flood No. 28 is in the Richburg pool, Allegany County, New York, and Flood No. 29 in the Burning Well pool of southern McKean County. Although none of the "five-spot" floods had reached their economic limits at the end of the period for which the production is given, in most instances such a stage had been reached that the quantity of oil remaining to be recovered by the methods now in use would not add appreciably to the total recovery, calculated on a per acre or a per acre-foot basis.

As the thickness of the Bradford Third sand and the part that is oil bearing vary within rather wide limits over different parts of the Bradford field, for purposes of comparison the recovery per acre-foot has been calculated on the basis of the thickness of oil-bearing sandstone estimated to be present under each tract. The average thickness of the entire sand body was calculated from the drillers' records. The thickness of this which is oil-bearing sandstone was obtained either from the measurement of cores or from the examination of drill cuttings taken on or near the property.

Relation of Production of Oil by Water-Flooding to Physical Characteristics of Sand

A close relationship exists between the physical properties of the Bradford Third sand and the success attained with water-flooding. The ideal sand for water-flooding, as shown by core studies, appears to be one in which practically all its grains are less than 0.2 millimeters in diameter and the porosities of its different members fall within the limits of 14 and 16 per cent and their permeabilities between 5 and 10 millidarcys. It possesses an average oil saturation of 45 or more per cent.

From the standpoint of permeability, the core shown in Figure 2 of the first article of this series represents an ideal condition. The permeability profile of this core shows a maximum permeability of only 9.9 millidarcys and the permeabilities of each of the important layers of sandstone in the sand body fall within about the same range. Flood No. 16 on the tract from which this core came yielded an exceptionally high recovery per acre-foot of oil-producing sand with a low water output to oil ratio.

This is the fourth of the series of articles on secondary recovery in the Bradford field by Dr. C. R. Fettke, professor of geology at the Carnegie Institute of Technology, Pittsburgh, Pa.

The first on "Physical Characteristics of the Bradford Third Sand and Relation to Occurrence of Oil" was published in The Oil and Gas Journal of August 5; the second on "Subsurface Waters of the Bradford Field" in the issue of August 12; the third, "Mechanics of Water-Flooding, Evolution of the Practice in Bradford," in the issue of August 19. The series will conclude with an article on "Production, Reserves, and Future Life of the Bradford Field."

In the Knapp Creek gas cap in the northwestern part of the Bradford field and the Rixford gas cap southwest of Rixford, the upper part of the Bradford Third sand, which originally contained large volumes of gas and only a little oil, frequently has a considerably higher permeability than that of the underlying oil "pay." In spite of the fact that considerable care is usually exercised in packing off the gas "pay," trouble from by-passing of the water is experienced in these areas. The water input and water output to oil ratios are high, as shown by Floods 23, 24 and 25. The fact that in Flood No. 14, near the southwest margin of the Knapp Creek gas cap, only 25 per cent by volume of the daily input water was being accounted for by the oil and water output after the flood had been in operation for four years, would seem to indicate that large volumes of water are not only entering the gas "pay" under the property but are probably also moving into adjacent areas not yet under pressure. In Flood No. 25, only 44 per cent of the daily input water was accounted for in the output after the flood had been in operation for three and one-half years. In marked contrast, the daily oil and water output at the end of four years was nearly equal to the water input in Floods 15 and 29, and in Flood No. 17 was equivalent to 80 per cent of the input at the end of four years.

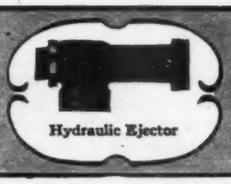
The so-called "loose streaks" in certain parts of the Bradford field, particularly the eastern lobe, but not restricted entirely to it, have been mentioned. These are much more permeable than the average Bradford Third sand. The results obtained in Flood No. 25, located along a narrow belt of highly permeable sand representing such a "loose streak" along the eastern margin of the Rixford gas cap, indicate that satisfactory recoveries may be expected where the highly permeable layers are a large enough part of a normal thickness of sand body and possess a sufficiently high oil saturation, but that the water input and water output to oil ratios will be much higher than in areas of more normal conditions. Floods in areas containing "loose streaks" will probably reach their economic limit before any layers of sand having only average permeabilities, that may be present, have been watered out.

Degree of Saturation

The degree of saturation of the oil-bearing sandstone is an important factor in determining recoveries. The K-unit of Flood No. 15 showed an unusually high recovery per acre-foot of oil-bearing sandstone. Core analyses showed an average oil saturation of 46.5 per cent for the top "pay" and 40 per cent for the bottom "pay." When the flood had about reached its economic limit, 51 per cent of the oil content, calculated on a per acre basis, had been recovered. The oil "pay" on the D-unit of Flood No. 23 had an average oil saturation of 36.3 per cent. When this flood was approaching its economic limit, 45 per cent of the oil content had been recovered. In contrast, the oil "pay" in a core from the tract on which Flood No. 24 is located had an average oil saturation of only 29 per cent. When this flood was approaching its economic limit, only 22 per cent of the quantity of oil shown by the core analysis had been recovered. The low recovery on this tract, however, is probably due not alone to the relatively low saturation of the oil "pay" but also to the marked difference in permeability of the various sand layers.

In a homogeneous inclined sand stratum, Wyckoff, Botset and Muskat have shown that it would be advantageous to flood up the dip, as under these conditions there is less tendency for cusping or fingering and the water advances more uniformly.[1] In much of the Bradford field, how-

[1] R. D. Wyckoff, H. G. Botset and M. Muskat. The Mechanics of Porous Flow Applied to Water-Flooding Problems. Trans. A.I.M.E., Vol. 103, 1933, pages 236-237.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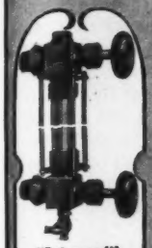
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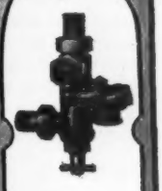
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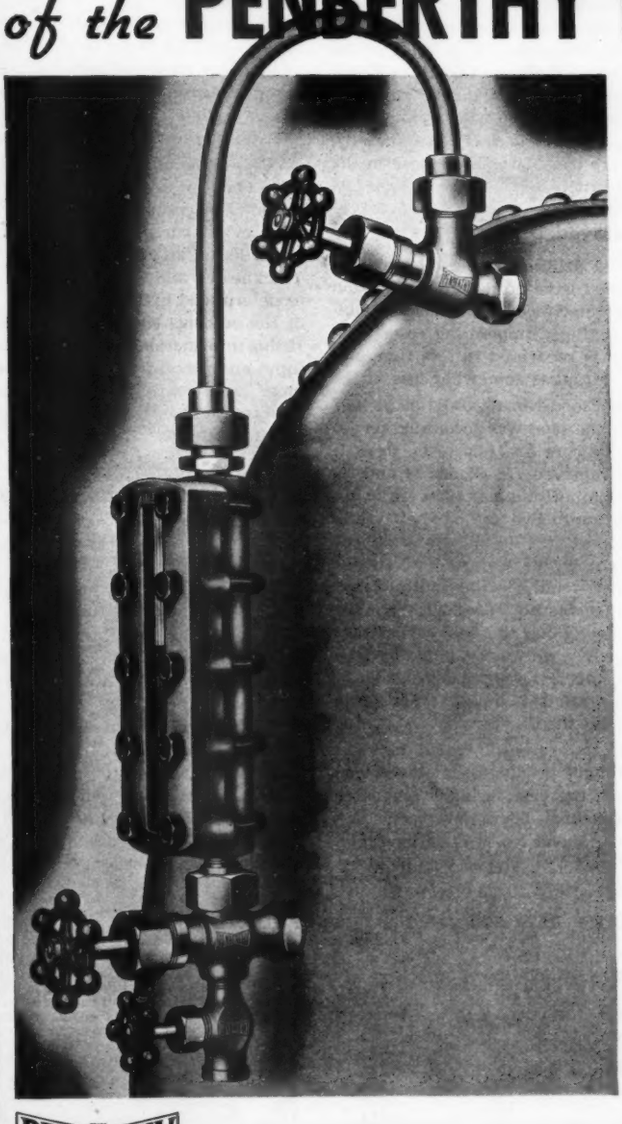

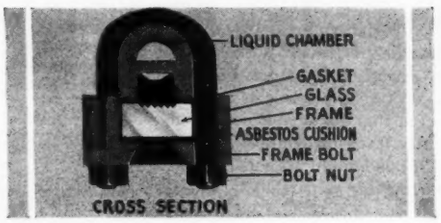

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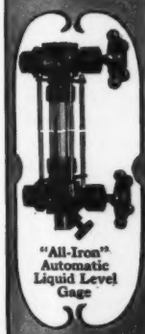
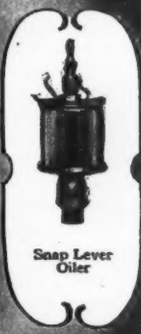

"All-Iron" Automatic Liquid Level Gage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ever, the dips are so slight that the irregularities in the sand body far outweigh any effect that structure may have on the advance of the water-oil interface through the individual layers of sand. The intensive method of water-flooding now in use in the Bradford field does not lend itself to adjustment to the structural contour of the sand.

Spacing

The spacing between water-input and oil wells now in use has been determined largely by long experience. In some of the earlier "five-spot" developments, distances between water-intake and oil wells were as low as 150 feet. Now 200 to 225 feet is a more common distance. A study of Table 3 reveals that this increase has not resulted in any decrease in oil recovery per acre-foot of oil-bearing sandstone. It has, on the other hand, resulted in a considerable decrease in development and hence in production costs. It is doubtful, however, whether it would be advisable to widen the spacing still farther on account of the marked variations in the character of the sand within relatively short distances. The presence of irregularities would frequently result in the loss of much oil if spacing were too wide. In exceptionally thick bodies of sand containing numerous shale seams, it may even be advisable to shorten this distance if core analyses show a sufficiently large oil content per acre. The local sand conditions should be considered in determining the spacing for a particular tract.

Concomitant with the increase in distance between input and producing wells, pressures at the face of the sand in the intake wells have also been increased. Pressures ranging from 1,000 to 1,500 pounds per square inch with the wider spacing have proved satisfactory in areas where sand conditions are normal. Where the major portion of the sand has a relatively high permeability, as in Flood No. 26, a lower pressure than the one used probably would have resulted in lower water input and water output to oil ratios and quite probably a greater recovery per acre-foot of oil-producing sand, but the rate of recovery would have been reduced. It has been shown, experimentally at least, that, if production is too rapid, the water will show a decided tendency in cusping or fingering toward the producing well.[2]

With a spacing of 200 to 215 feet between intake and producing wells and a pressure of 1,000 to 1,500 pounds per square inch at the face of the sand in the intake wells, in areas where the sand has a normal development, between 80 and 90 per cent of the oil recoverable by water-flooding is obtained during the first four years that the flood is in operation. Water input to oil ratios of those floods studied for which the data were available ranged all the way from 3.33:1 to 26:1. Ratios above 10 were confined to floods located in areas where the oil "pay" is overlain by a gas "pay." In these areas the quantity of water produced with the oil during the later stages of production was so large that it was not feasible to gauge it. In the floods with the lower input ratios, the water output to oil ratios ranges from .71 to 2.85 for the periods covered by the production data. Unfortunately detailed data on water input and output were not kept for Flood No. 26, in an area of highly permeable sand.

Intake wells take water most rapidly at the start. The rate then declines, at first rapidly and later more slowly. Operators sometimes offset this decline by increasing the pressure. A study of the results obtained seems to indicate that little if anything is gained by this practice during the later stages of a flooding operation as the rate of oil production is not appreciably increased thereby, but usually there is a considerable increase in the water output to oil ratio.

Delayed Drilling

Although delayed drilling of the oil wells on the properties studied gave no definite indication of an appreciably greater recovery, it has undoubtedly resulted in a savings in operating costs. The same amount of oil is recovered in less time and usually the water output is somewhat less.

In the K-unit of Flood No. 15, only about half of the pore space of the sand was accounted for by the oil shown by the core analysis to be present and the oil already removed. In Floods 17 and 29, data on both water input and output were available for periods of five to five and one-half years. The fact that in Flood 17 the oil and water output was only 55 per cent of the water input and in Flood 29, 51 per cent would seem to indicate that the entire pore space was not filled with liquids, such as oil and water, when the first wells were drilled, but that much space was occupied by free gas. In these tracts, this gas was not segregated in the upper part of the sand body but apparently was distributed throughout the oil "pay."

As a general rule, those areas in which the yield per acre by the ordinary production methods was high have also given the best results when later subjected to water-flooding. There have been some exceptions, however. Flood No. 4 is an example. On this tract of 37 acres, developed originally by eight wells, the natural production was only 1,141 bbls. per acre in contrast to a yield of 3,294 bbls. per acre by water-flooding. The tract is near the northern edge of the pool. When it was first developed, the reservoir pressure had probably already been reduced considerably and it was, therefore, not as closely drilled as most parts of the field on account of the low initial production of the wells. As a result, the natural production calculated on a per acre basis was low.

Old Floods

In developing tracts containing old floods, care has to be exercised not to drill oil wells at points where a large part of the sand body has already been watered out. Attempts to drive oil toward such wells from areas that have not yet been reached by the flood waters have not proven successful. In delayed drilling of oil wells, trouble may arise from this source if the bank of oil that is built up ahead of the water does not develop symmetrically around the center of the pattern, owing to sand irregularities, and the water reaches the site of the producing well before it is drilled.

Unless the characteristics of the sand body are already definitely known from the results obtained on adjacent properties, it is always advisable to take several cores of the sand on a property before undertaking an extensive water-flooding problem. Thicknesses and characteristics of the sand body as determined by the drill and by the examination of the cuttings should be recorded for each well. If this information is available, the behavior of the input and producing wells can later be interpreted more intelligently. This, in some instances, may indicate points where it may be profitable to drill additional wells.

[2]H. D. Wilde, Jr., The Value of Gas Conservation and Efficient Use of a Natural Water-Drive as Demonstrated by Laboratory Models. Production Bulletin No. 210, American Petroleum Institute, 1932, pages 4-10.

Asphalt Highway Conference

Producers and consumers of petroleum asphalt will combine forces this year and hold only one bituminous highway conference rather than two as in past years. The joint conference, known as the Montana National Bituminous Conference, will include the National Road Oil & Asphalt Congress, held annually in Tulsa for the last six years and sponsored by the Western Petroleum Refiners Association.

The joint conference will be held September 7, 8 and 9 in Glacier National Park, Montana, and is expected to attract more than 500 highway engineers, together with chemists, engineers and asphalt technologists from the petroleum industry. Every state has been asked to participate and most have accepted.

TABLE 1—SUMMARY OF PRODUCTION DATA FOR VARIOUS TYPES OF FLOODS

Flood	Type of flood—	Area (acres)	Distance between intake and producing wells (ft.)	Average thickness of oil-bearing sandstone (ft.)	Pressure pounds per square inch at face of sand in intake wells	Oil recovered per acre (bbls.)	Oil recovered per acre-foot (bbls.)	Water input to oil ratio for entire period	Water output to oil ratio for entire period	Average daily oil production per well at end of period included (bbls.)	Water output to oil ratio at end of period
1	Circle	35.9	...	30	600	5,623	187	....	...	...	....
2	Circle	9.7	...	26	600	3,754	144	....	...	...	....
3	Circle	21.8	...	24	490	5,175	216	....	...	...	....
4	Circle	30.7	...	24	585	3,294	137	....	...	...	....
5	Circle	12.3	...	28	525	4,619	165	....	...	...	....
6	Circle	4.0	...	43	535	5,013	117	....	...	...	....
7	Circle	135.0	...	24	700	3,027	126	....	...	...	....
8	Circle	20.2	...	20	875	2,637	132	....	...	...	....
9-W	Circle	16.5	...	19	700	3,804	200	....	...	...	....
9-E	Circle	30.0	...	24	850	5,694	237	....	...	...	....
10	Line	16.6	152	24	700-785	4,275	178	....	...	...	....
11	Line	3.5	170	28	675	4,280	153	....	...	...	....
14	Five-spot	25.0	190	29	625-1,025	6,777	234	....	...	.47	....
15-I	Five-spot	13.41	180	38	800-1,000	5,651	149	....	1.73	.67	15.0
15-K	Five-spot	1.49	180	36.5	800-1,000	8,988	246	....	1.53	.89	13.0
16	Modified five-spot	3.14	...	31	760-1,050	7,276	235	....	1.89	...	....
16-D	Modified five-spot	1.32	...	28	760-1,050	7,280	260	....	.76	1.00	20.0
17	Modified five-spot	13.20	210	34	810-960	7,483	220	4.90	1.71	1.60	12.0
18-S	Five-spot	28.8	200	26	720-970	5,014	193	....	...	1.58	....
18-N	Five-spot	30.6	200	28	720-970	5,266	188	....	...	1.47	....
19	Five-spot	4.37	154	38	700	7,131	188	....	2.85	.60	25.0
20	Five-spot	63.8	152	42	715-835	4,850	115	7.33	...	1.54	....
22	Five-spot	16.38	244	25	1,200	2,065	83	....	...	1.09	3.11
23-AB	Five spot	2.9	178	31	940	5,947	192	12.84	...	1.61	....
23-D	Modified five-spot	1.9	...	34	940	6,211	182	....	...	1.35	....
24	Five-spot	13.07	223	22	885-1,335	1,537	70	26.0	...	1.44	....
25	Five-spot	34.5	224	31	900-1,550	1,921	62	....	...	.72	....
26	Modified five-spot	26.26	193	35	800	4,679	142	....	...	3.86	....
27	Five-spot	18.0	198	..	1,700	1,620	...	....	...	1.43	....
28	Five-spot	72.0	198	..	540-1,200	6,020	...	....	...	.65	....
29	Five-spot	24.79	212	34	1,500-1,600	5,143	151	3.33	.71	1.67	4.11

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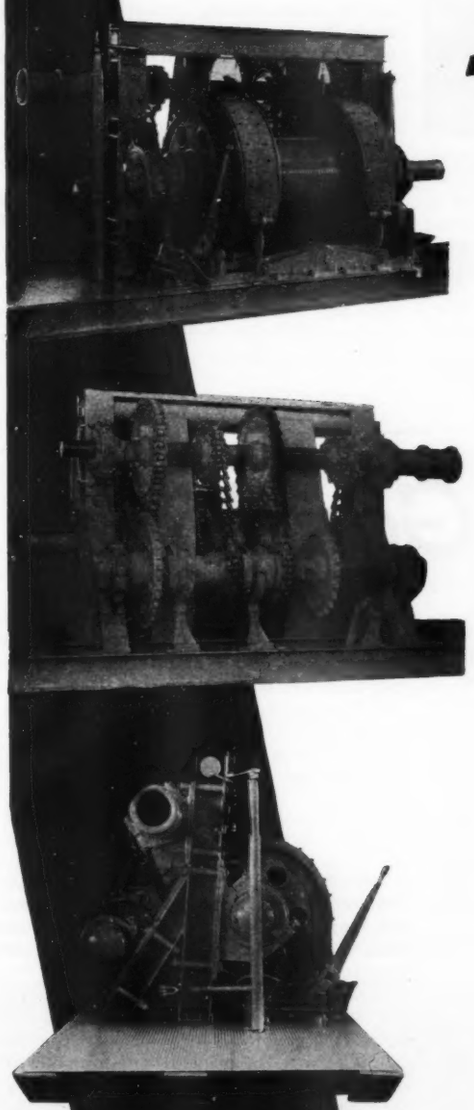

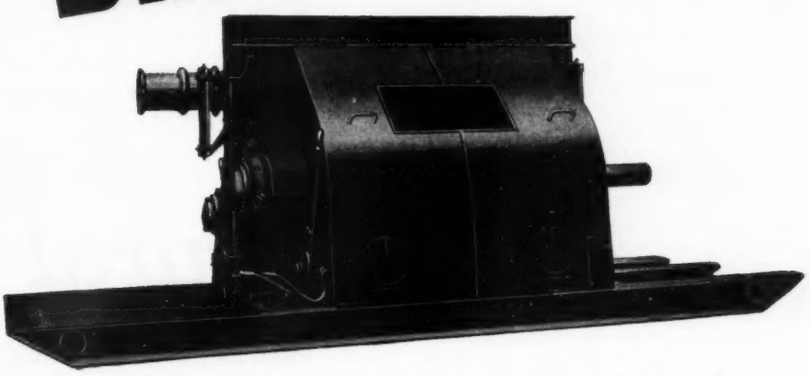

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Jack Turner, Sinclair Prairie; Frank Wayman, Shell; C. B. Holms, Stanolind; S. M. McAnaly, Lone Star (seated); Lewis Todd, Gulf; Nate Weeks, Continental; Norris Plank, Shell; R. A. Walling, Carter; Paul Bowman, Natural Gas Corp.; H. L. Oder, Cities Service; C. A. Gibson, Cities Service; Russel Clark, Phillips; Glen Green, J. E. Crosbie, Inc.; Gwinn Felton, Phillips.

N.G.A.A. Conducts Field Gas Tests

Further studies of compression testing of natural gas to determine its gasoline content were completed last week in the Seminole area of Oklahoma by a large group of Mid-Continent gas testers. A project sponsored by the Natural Gasoline Association of America, the current hot weather test series is part of a broad program begun last February in the Burbank pool, where the cold weather tests were made.

The principal object of this research program is to determine the relative merits of the water-jacketed accumulator and the nonjacketed accumulator on compression test cars at different seasons of the year. In extremely hot weather the water-jacketed accumulator yields a slightly higher natural gasoline content on lean gases since its temperature is maintained near the freezing point by means of circulating ice water. In cool or cold weather, however, results from either type of accumulator are practically the same and the nonjacketed type has a distinct mechanical advantage in that it will not freeze up and slow down the testing process. Norris Plank, Shell Petroleum Corp., chairman of the Gas Testing Committee, who has directed the two test series, indicates that the exhaustive field work carried on during the past year should result in a practical compromise on the use of the two types of accumulators.

Additional work in connection with these test series is concerned with the determination of a dividing point between the application of the charcoal and compression test methods. Most lean gases are tested by the former method while the latter is universally used on rich gases, and though 1 gallon of gas is usually assumed to be the dividing line, no standard recommendation has yet been made.

Gas samples for fractional analysis were obtained at each meter setting where physical tests were made and these will be used for comparison purposes as well as in another research project of the association in which the analyses of gases from all Mid-Continent fields are being studied.

Fourteen different company representatives took part in the recent tests and nine test cars were used.

Plant Nearing Completion

Construction of Aldon Gasoline Co.s new natural gasoline plant in the Stone sector of the Burrton field of Kansas is rapidly nearing completion. Location of the plant is in section 20-24s-4w on the Tucker farm, near Haven. The unit will process some 10,000,000 feet of gas daily and will be the vapor rectification type. The company, with headquarters in Tulsa, is owned by A. L. Ballard and R. J. Wallace. Cost of the new plant will be about $200,000, construction work being done by the Petroleum Engineering, Inc.

Plant for Joaquin Field

SHREVEPORT, La.—Portex Oil Co., owned by H. A. Stebbinger and others, is preparing for the construction of a natural gasoline plant to handle the wet gas production recently developed in the new Joaquin field of northern Shelby County, Texas. Three prolific gas-distillate producers have been completed in this field upon Pickering Lumber Co. lands, having a total aggregate gauge of about 225,000,000 feet on potential test, with about 60 bbls. of distillate per hour. After the distillate and gasoline has been stripped from the gas, it is planned to return the residue to the formation.

To Build Flour Bluff Plant

HOUSTON, Tex.—Humble Oil & Refining Co. has let the contract for construction of its new gasoline plant in the Flour Bluff field of Texas to Petroleum Engineering, Inc., of Tulsa. The plant will be of the combination compression-absorption type and will have a capacity for processing 15,000,000 feet of gas daily. It is estimated that the total expenditure on the plant will approximate $300,000.

Natural Gas News

Iowa City to Use Natural

Iowa City, Iowa, Light & Power Co., after a three-year fight to bring natural gas to the city, is proceeding with plans as the result of a decision by the eighth circuit court of appeals at St. Louis, Mo., upholding an injunction to restrain the municipal government from interfering with the project. The new service will be started about September 1. The case will be fought no further according to Mayor Myron Walker, recently elected on a platform opposed to municipal ownership. As soon as changeover of equipment can be made, Iowa City consumers will have the new fuel, according to Roscoe E. Taylor, manager of the company.

Gas for Irrigation

Experiments in Floyd County, Tex., using natural gas power for irrigation purposes, may open widespread use for this purpose and consequent agricultural development on the Panhandle. Gas is being used to power the pump used on the John Hodel irrigation well west of Lockney, results indicating natural gas is one of the cheapest means of irrigation. Running part time, the pump supplied water for 100 acres for $38.50. After every 50,000 feet the gas rate decreases. The well is running an average of 12 cents per hour, but if the pump were run continuously during a month it is estimated it could be operated for 7 cents an hour.

Ruling on Gastex

AUSTIN, Tex.—The Railroad Commission has ruled that the product, known as Gastex, manufactured by Atlas Carbon Co. in the Panhandle does not come under the classification of carbon black, and that the restrictions on the use of sweet gas in the manufacture of carbon black do not apply to its manufacture. The process used by Atlas Carbon Co., recovers from 8 to 11 pounds per 1,000 feet of gas as against 1½ pounds of carbon black per 1,000 feet, it is claimed. On the basis of that production, it was shown the gas is worth more in the manufacture of Gastex than it is for fuel consumption.

Gas Legislation

WASHINGTON, D. C., Aug. 23.—The Lea natural gas regulation bill failed to receive action in the senate before adjournment, several senators objecting to its consideration without adequate time for debate.

The helium control bill was passed by the house and sent to the president with several restricting amendments which were reluctantly concurred in by the senate. The principal one prohibits sale for inflation of airships except for those operating in the United States or between the United States and a foreign country and even prohibits sale to a line operating between foreign countries but touching United States. Another requires that the sales price include 3½ per cent interest charge on capital used by the government in producing helium, but exempts medical sales from this requirement.

Improving Gas Lines

PETROLIA, Ontario.—Union Gas Co. of Canada, Ltd., is improving and enlarging its distributing system in Petrolia, a number of the old lines being replaced with larger pipe. Upon completion of the Petrolia work, some 22,100 feet of 10-inch pipe will be laid on the feeder line north of Wallaceburg.

Pipe Line Activity

Louisiana Contract

The pipe line department of the Standard Oil Co. of Louisiana, Shreveport, La., has awarded a contract to Williams Brothers of Tulsa, covering construction of 141 miles of 6-, 8- and 10-inch welded line, running westerly from Anchorage across the Mississippi River from Baton Rouge, La. (announced in The Oil and Gas Journal, July 29). There will be two branches from the main east-west line, one to terminate at Roanoke, La., and the other at Jeanerette, La. A pump station will be built near Sunset, La., at the junction of the two branches with the main line, and the total capacity of the additional system will be 20,000 bbls. per day. The construction of the station, all collecting systems, and units or tankage needed will be handled by the company forces. The entire job will be under the supervision of Smith W. Day, vice president, Standard Oil Co. of Louisiana, and manager of the pipe line department.

Completing Lodi Line

SHREVEPORT, La. — The 12-mile 6-inch pipe line being laid by Southern Liberty Pipe Line Co. (American Liberty) from its Rodessa system into the Lodi producing sector is nearing completion. Storage capacity of 10,000 bbls. has been erected at Lodi and final connections are being made. The company will deliver the production to Texas Pipe Line Rodessa system for transportation to the coast.

Illinois Line

MATTOON, Ill.—Wabash Pipe Line Co., subsidiary of Pure Oil Co., has filed application to construct a 45-mile line from the tank farm east of Noble to the tank farm of the Illinois Pipe Line Co. at Martinsville, Ill.

New Outlet for Lisbon

SHREVEPORT, La. — Caddo Pipe Line Corp., subsidiary of Grogan Oil Co. of Shreveport, has announced plans to lay a 6-inch welded pipe line into the Lisbon oil field of Claiborne and Lincoln parishes, Louisiana. The line will run from the field to Homer, a distance of about 18 miles and connect with Arkansas Fuel Oil Co.'s pipe line to Shreveport. Lisbon crude will be transported to this point through the Arkansas line for delivery to Grogan Oil Co. refinery at Cedar Grove, on the edge of Shreveport.

This movement will provide the Lisbon field with a much needed outlet, as Gulf Pipe Line Co. has announced that after 60 days it will not take more than 10,000 bbls. daily; and average allowable is now 12,000 bbls. daily.

Proposed Virginia Line

Dominion Gas Co. of Virginia is proposing construction of 682 miles of pipe line from the northwest corner of Rockingham County, Virginia, to transport natural gas to practically all cities in the central and eastern part of the state. The company is headed by Charles M. Hopkins and is not connected in any way with the Dominion Natural Gas Co., a subsidiary of Cities Service which operates in Canada. The Dominion company of Virginia is authorized to issue a maximum of 10,000 shares of stock at $1 par under its present charter.

Missouri-Kansas President

WILMINGTON, Del.—W. G. Maguire has been named president of Missouri-Kansas Pipe Line Co. Other officers are: Vice presidents, A. F. Dixon and H. P. Childs; treasurer, H. L. Tower, and secretary, William Tringham. Messrs. Maguire, Dixon and Joeffry R. Mellor were named to the executive committee. The directors voted 5 to 2 in favor of continuing the company instead of liquidating it.

Cleveland-Canton Gasoline Line

Standard Oil Co. of Ohio has awarded to Kelly-Dempsey Co., of Tulsa, a contract for 64 miles of 6-inch gasoline line from Cleveland to Canton, Ohio. Construction will start September 1.

Refinery Expansion

Grande Prairie Refinery

GRANDE PRAIRIE, Alberta.—Local interests have organized Grande Prairie Co-Operative Oil Refinery, to establish a marketing organization and eventually a small refining plant at Grande Prairie. Officers are: President, Thomas Watt, Beaverlodge, Alberta; vice president, I. V. Macklin, Grande Prairie; directors, George Stephen, J. L. Boyle, M. Floener; secretary-treasurer, E. H. Thomas; general manager, W. T. McFadden.

Dates of W.P.R.A. Meetings

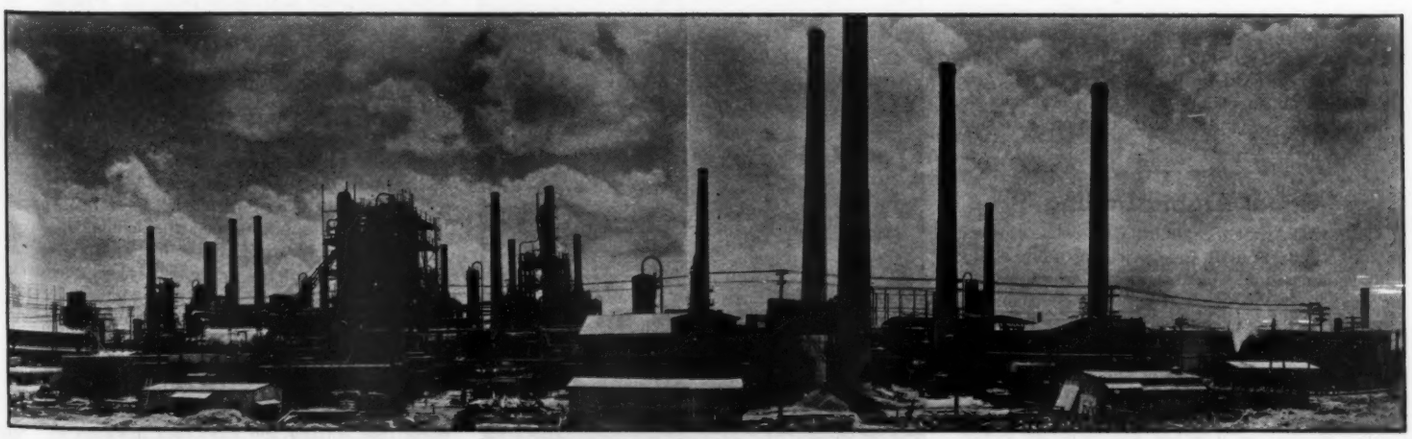
Dates for the series of regional technical meetings held by the manufacturing committee of the Western Petroleum Refiners Association were announced today by Emby Kaye, committee chairman. The meetings will be held in the same cities as those of last year. The cities and dates of the 1937 meetings: Wichita, September 21; Tulsa, October 5; Shreveport, October 19; and Fort Worth, October 29. The committee has under consideration a number of subjects of immediate interest to refiners and nationally known speakers have already been invited to present papers.

New Michigan Company

SAGINAW, Mich.—Organization of a new refining company, Cryden Refineries, Inc., a subsidiary of Cryden Petroleum Corp., has just been announced. The new refinery, which will maintain offices at Mount Pleasant, Mich., will take over the Drayton Plains plant of Inland Refineries, Inc., and will rejuvenate it to handle a daily crude run of approximately 1,500 bbls. The Drayton Plains plant is located between Flint and Pontiac, strategically nearby the Detroit metropolitan market outlet.

Alan S. Gray has been chosen chairman of the board, with Raymond S. Hunt serving as president and William B. Hartman as secretary. John Helms, former superintendent of the Naph-Sol refinery at Muskegon, will be superintendent of the new plant, and Charles Harris, formerly office manager for Leonard Refineries, Inc., will serve the new concern in the same capacity.

NEW POLYMERIZATION UNIT COMPLETED IN ATLANTIC REFINING CO. PLANT



New thermal polymerization plant built by the Atlantic Refining Co. at its Point Breeze (Philadelphia) refinery to produce polymer gasoline from refinery gases. The plant, first to be built in eastern United States, will have a daily production of 62,500 gallons of gasoline and will be the largest of its type in the world. It is designed to produce gasoline from gas generated during the cracking stage, the refinery having a cracking capacity of 38,800 bbls. daily. An expenditure of approximately $2,300,000 was involved in the addition to the plant.

Oil News from Foreign Lands

Colombia-Peru Output

For the first seven months of 1937, Colombia and Peru have produced more than 102,430 bbls. of crude per day. Through July, the two South American countries in which International Petroleum Co., Ltd., is the chief operator produced a total of 21,715,315 bbls. of crude. A portion of the total is estimated due to tardy reports on the output for May, June and July by Cia. Petrolera Lobitos (Shell) and Zarritos (F. G. Piaggio Soc. Ltda.), which produce relatively small amounts in Peru.

The rate of production during July tapered off slightly in Colombia, but gained a little in Peru compared to June. In comparison with July, 1936, however, Columbia's production is substantially higher while that from Peru is less. Peru, however, retains a slight advantage in production this year for the seven months over 1936. Colombia's output so far this year is 805,857 bbls. above the seven months in 1936.

COLOMBIA PRODUCTION

Month—	1937	1936
January	1,668,490	1,611,618
February	1,617,441	1,475,403
March	1,622,226	1,619,620
April	1,660,469	1,427,193
May	1,678,580	1,598,544
June	1,724,173	1,529,901
July	1,682,102	1,585,345
Total seven months	11,653,481	10,847,624
Increase, 1937, 805,857.		

PERU PRODUCTION

January	1,469,460	1,397,734
February	1,339,236	1,311,618
March	1,484,491	1,371,543
April	1,432,874	1,424,570
May	*1,448,436	1,515,400
June	*1,427,418	1,464,858
July	*1,459,919	1,529,002
Total seven months	10,061,834	10,014,725
Increase, 1937, 47,109.		

*Decrease.

New Kuwait Location

Camp and drilling equipment are being removed from Kuwait Oil Co. No. 1 Bahrah, north of the Kuwait Bay in the Persian Gulf district, to a new location about 50 miles south. After drilling No. 1 Bahrah to nearly 8,000 feet, the hole was abandoned and further geophysical exploration was ordered. The new location south of Kuwait Bay is based on geophysical information obtained subsequent to abandonment of No. 1 Bahrah.

Kuwait Oil Co., jointly owned by Anglo-Iranian Oil Co. and Gulf Oil Corp., will drill its new test, No. 1 Burghan, probably to a depth equal to No. 1 Bahrah unless commercial production is encountered at a lesser depth.

Saudi Arabia Drilling

California Arabian Standard Oil Co. has reduced its active operations in Saudi Arabia to one string of tools engaged on No. 10 Dammam which is drilling at 1,940 feet after setting 6⅝-inch casing at 1,914 feet. Drilling has been suspended at 4,530 feet in California Arabian No. 1 El'Alat, a wildcat test in Saudi Arabia about 40 to 45 miles north of Dammam dome which was proved productive late last year. It has not been reported whether it will be carried deeper or whether showings of consequence were encountered in drilling to the present depth of 4,530 feet. Three of the 10 holes drilled on the Dammam structure are reported shut in, including the discovery producer No. 2 Dammam which flowed 51 gravity at the rate of 3,800 bbls. per day from 2,502 feet. No. 1 and No. 3 Damman are also reported shut in; No. 4 and No. 5 are standing; operators are attempting to shut off water in No. 6; No. 7 Dammam is standing at 2,420 feet; No. 8 is standing at 3,302 feet, and No. 9 is standing at about 2,000 feet.

French Imports

Nearness of the construction stage on Compagnie Francaise de Raffinage new 12,000-bbl.-per-day combination topping and cracking unit at Martigues, France, focuses attention on the growing demand for petroleum products in that country. M. W. Kellogg Co. of New York, licensing agents for Gasoline Products Co., and construction engineering firm, has been engaged for more than two months with details of design and procurement of material for the new combination unit. Most of the preliminary is now completed and actual construction will start shortly.

Trend of the petroleum industry in France for the first half of 1937 has indicated national refining capacity and flexibility is inadequate to meet the growing demand for certain products, particularly motor gasoline, gas oil and residual fuel oil.

The extent to which France has gone in creating a refining industry is more strikingly reflected by a study of crude oil importations since 1931. Crude imports since 1931 show a constant increase, although the percentage of gain in 1936 over 1935 was considerably less than in earlier periods. A slackening of the rate of increase in 1936 over 1935 reflected the gradual approach of refining capacity to requirements of the country. The French refining industry amounted to very little prior to 1930, but adoption of a nationalistic policy in 1928 with participation in construction by concerns electing to continue in the country has reversed the picture. As a result, French crude oil imports jumped from 3,471,643 bbls. in 1931 to 42,061,152 bbls. in 1936 and this year will be even higher, but the increase this year probably will not exceed 2,000,000 or 3,000,000 bbls., based on indications of the first six months.

The need for new refinery construction in France such as is being launched by Compagnie Francaise de Raffinage at Martigues, appears indicated by the record of output during the past two or three years. In 1936, French refineries produced less of every product listed, excepting road oil and wax, than in 1935, even though crude imports increased from 39,351,249 bbls. to 42,061,152 bbls.

Out of the 42,061,152 bbls. of crude imported in 1936, French refineries produced and delivered a total of 31,350,243 bbls. of liquid products. In addition there were 10,635,000 pounds of wax extracted and 5,558 tons of petroleum coke produced. Out of the total of 31,350,243 bbls. of refined products, 12,135,832 bbls. consisted of fuel oil, which probably includes some material which could be logically placed in the distillate fuel oil classification.

FRENCH PETROLEUM IMPORTS

	Jan.-June 1937	Jan.-June 1936
Crude oil	21,763,553	20,189,484
Motor gasoline	2,017,890	1,828,135
Other gasoline	352,255	463,855
Kerosene	10,505	8,180
Lubricating oil	324,785	314,595
Gas oil	800,595	590,085
Fuel oil	2,069,570	1,489,175
Total	27,339,153	24,883,509

PRODUCTS DELIVERED BY FRENCH REFINERIES

	1936	1935
High-test gasoline	9,880,136	12,845,200
Other gasoline	3,141,319	3,658,264
Kerosene	1,180,162	1,630,166
Gas oil	1,855,123	2,266,908
Fuel oil	12,135,832	13,377,576
Lubricating oil	1,169,224	1,918,560
Road oil	1,988,447	1,770,819
Wax	*10,635,000	8,536,000
Petroleum coke	†5,558	5,958

*Pounds. †Metric tons.

ORIGIN OF CRUDE PROCESSED IN FRANCE

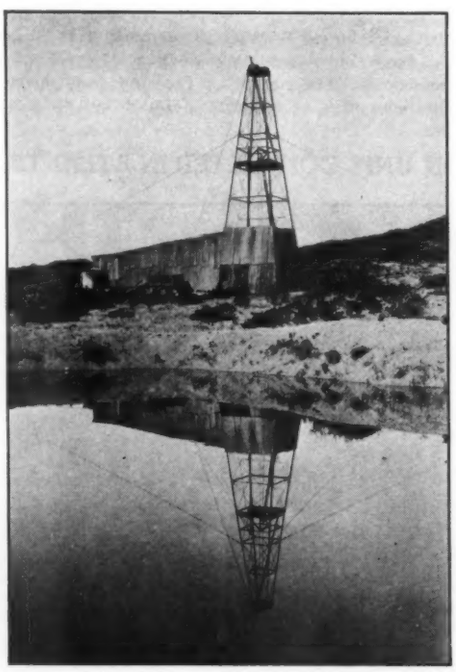
	1936	1935
Colombia	2,535,323	2,739,982
United States	6,994,694	9,281,587
Iran	138,642	26,166
Rumania	2,401,616	428,253
Venezuela	3,675,196	3,162,425
Ecuador	240,191	268,674
Netherland Indies	250,922	1,593,837
Peru	4,098,283	3,344,691
U.S.S.R.		381,556
Iraq	21,726,285	18,124,078
Total	42,061,152	39,351,249

From 1865 to 1928 there were only two petroleum refineries of importance in France, Courchelettes (Nord), depending on imported crude for producing kerosene, and Merkwiller (Alsace), refining domestic petroleum from the Pechelbronn oil field.

Rapid development of a national refining industry followed the protective laws of March 15 and 13, 1928, implemented by decrees dated April 1, 1931. The only source of domestic production in France consists of the Pechelbronn field, yielding about 575,000 bbls. annually, or about 1 per cent of the nation's requirements.

Since 1928, 13 new refineries have been established at various points near the seaboard, one at Dunkirk, four on the lower Seine, two at Donges near the mouth of the Loire, two near Bordeaux, one at Frontignan and three near Marseilles. Construction of these plants involved a capital of over 2,000,000,000 francs and the maintenance, expansion and replacement cost runs into millions of francs annually.

The American consulate's office in France reports that during the first four months of 1937 the value of petroleum products imported by that country was nearly half as great as that of crude oil, although in volume the ratio is about 5 to 1 in favor of crude.



Lonely well in the Argentine reflected in storage pit

ENGINEERING AND OPERATING SECTION

Presenting modern developments in operation of producing properties, refineries and gasoline plants, and pipe lines, including petroleum research in the field and laboratory

This Week

LIFE OF STRIPPER WELLS EXTENDED THROUGH IMPROVED EFFICIENCY—By Mitchell Tucker ..... **Page 56**

Following advances in crude oil prices in the past two years and other contributing reasons, many stripper wells in old fields are being reconditioned and steps taken to improve their pumping efficiency. This is acting to greatly lengthen the lives of many small wells and increase their ultimate production.

FLEXIBILITY FEATURES NEW HUMBLE TWO-STAGE DISTILLATION UNIT—By George Weber ..... **Page 59**

Humble Oil & Refining Co. now has under construction a 19,000-bbl. crude distillation unit especially designed to operate on a variety of paraffin crudes. Atmospheric and vacuum fractionation are provided.

ILLUSTRATED OPERATING IDEAS ..... **Page 61**

Idler for V-belts driving slush pump. Housing power equipment. Electric motor drive for pump. Muffler for gas engine. Steps to walkway along walking-beam. Method of salt water disposal in Edmond field.

HEAVIER DRILLING EQUIPMENT AIDS DEVELOPMENT IN WEST TEXAS—By Neil Williams ..... **Page 63**

Newer and heavier types of drilling equipment are playing an important role in the development of West Texas since they act to greatly reduce drilling time. Other aiding factors are pressure drilling, effective completion practices and wider use of geophysics.

PROGRESS IN METALS—By W. L. Nelson ..... **Page 64**

Terms used in describing strengths of steels. Alloy steel production increases. Hardness of steels.

WASTE HEAT RECOVERY FROM DIESEL ENGINES—By Glenn C. Boyer ..... **Page 67**

Present-day diesel engines are one of the most efficient prime movers used in the oil industry, and yet only about one-third of the heat energy supplied is transformed to useful work.

ELECTRIC WELDED CASING STRINGS INCREASE ON GULF COAST—By M. P. Hare ..... **Page 77**

Field welding of casing strings is finding increased use on the Gulf Coast as continued research develops proper procedures and methods of welding smaller diameter casing. Various problems that hindered development of the practice are discussed.

QUESTIONS ON TECHNOLOGY — By C. K. Francis, Ph. D. ..... **Page 81**

Operations involved in the use of Friedel and Crafts reaction. Method of analyzing crude oil to determine quality. Removing salt and water from crude oil through use of the electrical method.

PROBLEMS FROM READERS—By L. G. E. Bignell **Page 82**

Use of superheaters in steam lines of drilling rigs. Plugging back well from Viola to chat formation in Kansas oil field. Market for fuller's earth.

Life of Stripper Wells Extended Through Improved Efficiency

By MITCHELL TUCKER

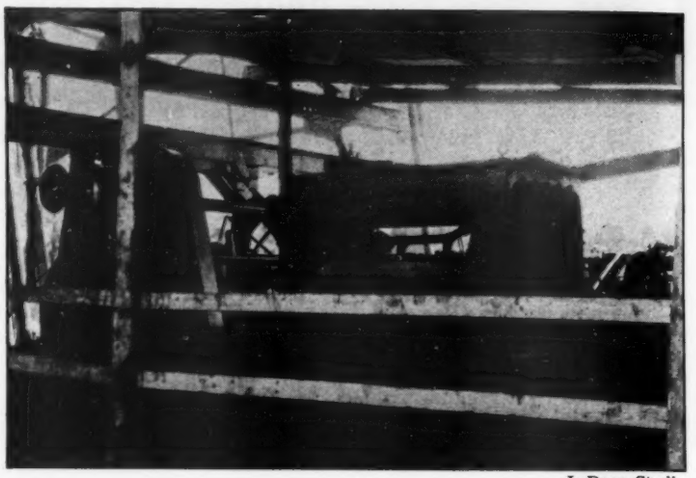
Approximately 15 per cent of the producing wells in the United States produce about 85 per cent of the total daily production. The other 85 per cent produced from one-quarter to 5 bbls. per day, usually accompanied by large quantities of water. Many of these stripper wells in old depleted fields have come back to the profit side of the ledger during the last year or two following increases in crude oil prices, and other contributing reasons, with the result that the properties are now being looked upon with increasing favor, and are being improved, new equipment added where justified, and their economic life is being extended far into the future.

The question of "how long does an oil field last" has never been fully answered, as none of the major fields of the country have been exhausted. Most of the stripper fields have exhibited the ability to produce year after year at a reasonably well sustained rate of production. There is now a growing tendency among both major and independent operators alike to pay more and more attention to their stripper properties. Steps are being taken in many directions to increase the efficiency of operations, cut down costs, maintain production, and add materially to the reserves by widening the gap between profitable operations and the economic limit. Fields which a few years ago were operating at a loss month after month are now money makers for their owners. Moreover, some shallow fields that were abandoned during the period of low oil prices have been revived or redrilled and are yielding a good profit to their operators. The Bellevue and Oakland fields of Northern Louisiana are examples of this.

Depleted properties have always held two important intangible values; first, the probability that sometime secondary recovery methods could be economically applied, and second, the possibilities of production from deeper levels on the same structure.

Although much remains to be learned about such secondary recovery methods as repressuring, water-flooding, steam injection, or oil mining, they have all advanced to the point where with certain adequate data at hand rather accurate decisions can be made as to whether or not particular fields will respond to each type of artificial stimulation. That is, the requirements for a successful water drive or repressured reservoir are fairly well established, and experiences gained in other fields can be applied to determine whether or not certain fields offer attractive possibilities for each type of secondary recovery. Furthermore, the industry is now provided with several excellent examples of greatly increased recovery through such production methods in unit operation. This fact alone has done much to break down the first, and at one time the most difficult, barrier to their application; i.e., the difficulty of obtaining cooperative or unitary agreements in their application.

Profitable stripper production has been extended into the future in many fields where deeper production was found, as generally the same costs of field organization overhead can be spread over production from all sands in proportion to the per-barrel production, which takes a serious burden off of the stripper wells. The same has often happened in instances where deeper production has been opened up in the close vicinity of stripper pools. In such cases, they can be properly relieved of much of the warehouse, office, and overhead expense which it was necessary for them to formerly bear.



LeDoux Studios

Motor side of the truck-mounted rotary

Closer Drilling

Another important development over the last year or two in a great many fields of old age is the drilling of new inside wells. In areas where great dissipation of reservoir energy was suffered during early operations, a clean withdrawal of the oil saturation was of course impossible. In these areas core analyses have proven that a very low percentage recovery of saturation to effective pore space has been obtained. The closer drilling of these older fields is further stimulated by the advancements in portable drilling machinery, which can drill 2,500-foot holes in less than a week at a cost which will permit a reasonable pay out.

Many examples may be cited where wells on inside locations have been completed over the last year for from 10 to 40 bbls. daily alongside depleted producers. This seems to offer convincing proof that the poor production practices of early years result in rapid waste of motivating energy and left much of the otherwise recoverable oil in place.

The present development of inside locations in depleted fields is further attractive because the new completions can, in most cases, be connected to the present lease power without increasing its overall operating cost, and often results in doubling the oil which it lifts per day. In other words, the actual cost of the well can be paid out not only by the increase in production, but also by the reduction in overhead lifting cost per barrel for the property.

Figure 1 illustrates a truck-mounted rotary in operation. Drawworks, slush pump and gasoline

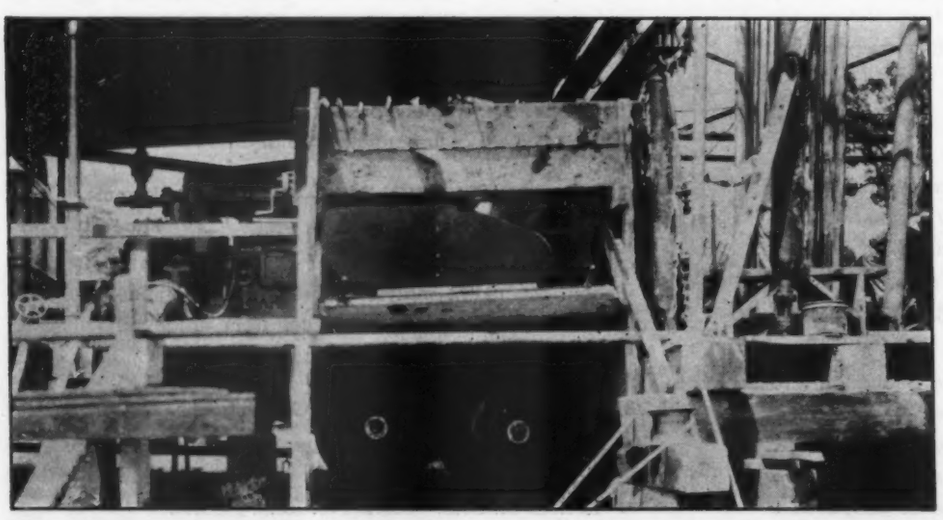


Fig. 1—Truck-mounted rotary drilling inside location in a depleted field. Motor, slush pump and drawworks are mounted on truck, which is blocked up to derrick floor level while drilling

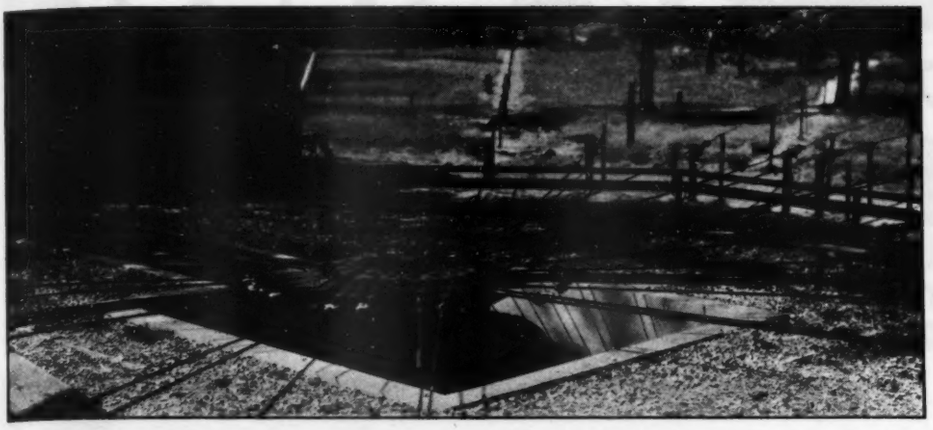


Fig. 2—Modern installation of an oil-bath geared power in surroundings of an old settled field

motor are mounted on the bed of the truck, which is blocked up to derrick floor level during drilling operations. The truck motor and auxiliary motor may be compounded to operate either the drawworks or pump.

Reconditioning

Over the period of years when no money was spent in stripper fields that was not absolutely necessary, pumping equipment was frequently damaged and lifting costs greatly increased by the attempts to handle large quantities of water which could be reduced or eliminated by proper well repair work.

Recent improvements in oil well cements, subsurface cementing tools, and cementing practices have done much to reduce the hazard of such work, and assure a far greater percentage of successful jobs. Newer cements can be handled at heavier slurrys so as to minimize contamination while setting in the presence of large water volumes. Their introduction into the water sands on squeeze or plug-back work at pressures as high as 3,500 pounds or more is now possible. Where rotten casing danger is presented, cement retainers are used so that the entire pressure is placed upon the tubing and the lower joint of casing.

Whereas before no possible pay-out could be figured on certain reconditioning work, the cost has now been reduced and the percentage of successful jobs so increased, that their application is attractive. An ordinary squeeze job can be given a water formation for around $600, and if successful it will be quickly paid out through increased oil and gas production, reduced water, by the use of smaller tubing and working barrels, less stress on equipment, and a reduction in servicing jobs.

The almost universal practice of maintaining accurate well trouble and cost records has permitted many economies to be made through close study of the distribution of costs on stripper properties. As a general rule, about 65 per cent of this cost is for labor, 20 to 25 per cent for repairs to wells (such as cleaning out, servicing, replacements of tubing, rods, barrels, etc.) and the remaining 10 to 15 per cent is generally apportioned for fuel, water, transportation, and general lease supplies.

In as much as labor costs constitute by far the greatest portion of per barrel lifting costs on this type of producing property, operators have quickly recognized this as the most fruitful field in which to work for reductions. By making a further breakdown of the lifting costs, the entire labor cost can be segregated into the different types of labor and for the different purposes. Almost invariably it is shown that a little money spent under the "Repairs to Wells" classification will pay itself out through a reduction in labor costs. For instance, if an excessive portion of the labor charge on a certain lease is going to repair of rod lines, perhaps a string of well-rods that has been parting too frequently could be converted to rod-line service, and better rods put in pumping service, with an overall reduction in labor costs which will pay the added investment out in a reasonable time. Of course, the statement is often made that lease labor must be available anyway, but if the leasemen are relieved of too frequent minor repairs, they may have the needed time to spend in keeping major pieces of equipment in better repair, or be available for special jobs on nearby leases rather than employ extra workmen.

One of the most important developments in the present campaign to revive depleted fields is the discovery that it is profitable, under certain conditions, to discard old machinery in lieu of modern equipment. Figure 2 presents an example of such modern installations in the surroundings of an old settled field. Here an up-to-date geared power has been set down where an old style bandwheel eccentric had been operating at high repair costs for many years, pumping 38 wells.

Pumping Equipment and Practices

The actual cost of pumping depleted fields constitutes their largest expense, of course, and the efficiency with which this is done marks the margin of profit or loss. Closer study of this problem includes mainly the checking of oil and water levels in individual wells, and in the selection of the most adaptable size and type barrel under given conditions.

Standard equipment in the warehouses of many stripper fields include accurate measuring facilities to be used in the determination of water and oil levels, so that tubing and pump may be set at the proper position. As water increases, the oil-fluid level must be studied and position of tubing or barrel adjusted. Figure 3 shows a two-man crew, under the direction of an engineer, spooling in measuring line to record fluid levels. Such measurements are made at the time of all service jobs, and accurate records kept of any rise in water or oil. If the effect of any such changing condition is noticeable in offsetting holes, proper measures can be taken to correct or retard the damage. Close study of changing oil-fluid levels will permit changing of pump levels, stroke, speed of pumping, type barrel, etc. Some companies who make a close observation of changing fluid levels are maintaining charts or curves which reflect changing heights of oil and water in the hole as of certain dates, and in comparison to total withdrawal between dates.

In wells comparatively free from water, but yielding only a very small amount of oil daily, volumetric efficiency of pumps have always been very low, particularly because there was not enough volume to be pumped to allow for a high efficiency. In such wells small barrels, having an inside diameter of 1¼-inch or less, have proven their worth. Savings in initial cost, reductions in stress on rods and surface equipment, lower treating costs, and possibly increased production, is claimed by their use.

Pump Capacities

The size barrel should be largely governed by the differential in reservoir and well pressure. Fluid is liberated from the reservoir formation only when the well pressure is less than the formation pressure. As the differential increases, the volume of fluid entering the well bore also increases. During the shut-down period in intermittent pumpers, the fluid level tends to equalize the bottom-hole and reservoir pressures. Obviously, less fluid is liberated from the formation after extended shut-down as the differential pressure becomes smaller and smaller. When over-capacity barrels are replaced with smaller pumps, an increase in production is often noted, because by lengthening the pumping time a more even rate of seepage from the formation into the well bore is obtained.

The pump capacity should equal the flow of fluid into the well cavity as nearly as possible. "Pounding down" occurs when fluid does not enter the well bore fast enough to completely fill the pump at each stroke. This not only sets up undue stresses in the tubing and rods, but has a detrimental effect on surface equipment. If water is being produced with the oil, pounding down increases the intensity of agitation and stimulates an active emulsifying agent.

Judging only from a theoretical standpoint, wherever smaller diameter pumps will increase the volumetric efficiency, their installation is justified. The volumetric efficiency is the ratio of fluid discharged from the pump to the actual displacement of the plunger. Under good operating conditions, this efficiency should range from 60 to 90 per cent. When over-capacity barrels are used, the efficiency is often reduced to as low as 5 per cent. In such cases, the smaller diameter pumps afford a logical means of increasing this efficiency, if all other conditions are favorable to their installation.

Fig. 3—Two-man crew spooling in measuring line to check oil and water levels of an old well

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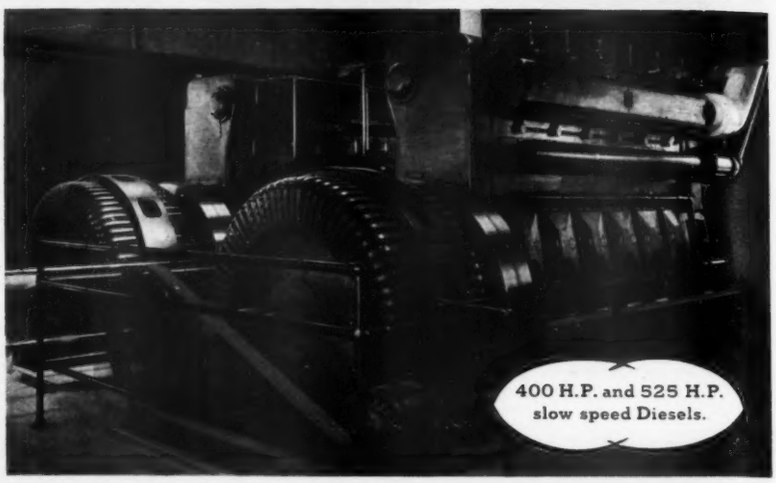
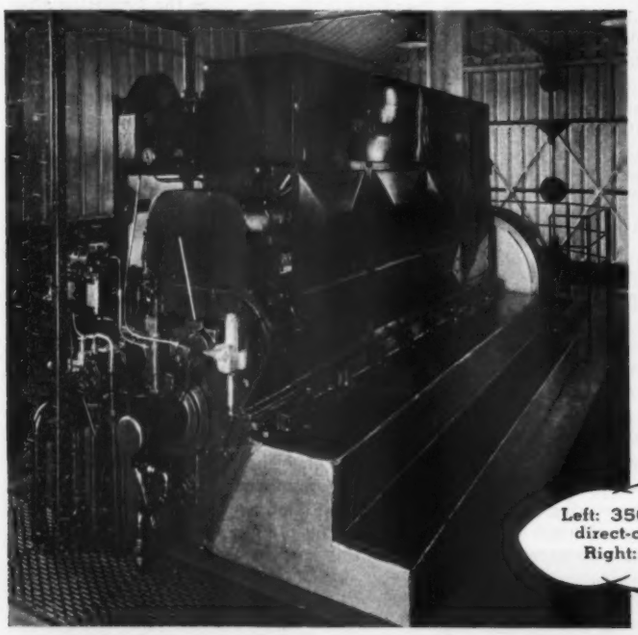
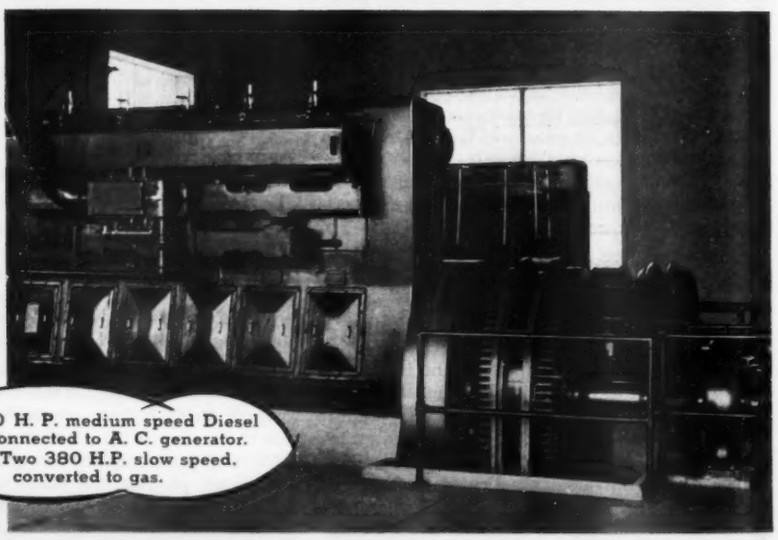


400 H.P. and 525 H.P. slow speed Diesels.





Left: 350 H. P. medium speed Diesel direct-connected to A. C. generator.
Right: Two 380 H.P. slow speed, converted to gas.

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Flexibility Is Feature of Humble Two-Stage Distillation Unit

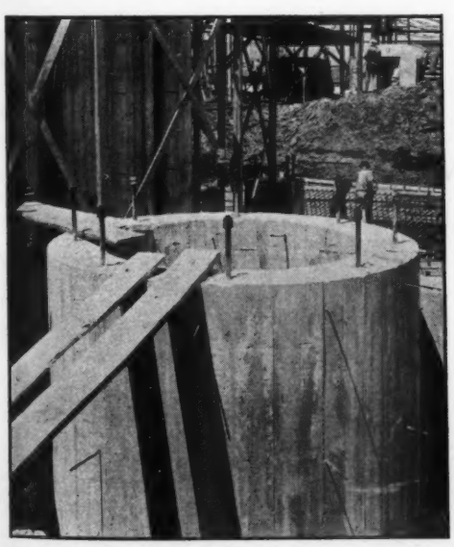
By GEORGE WEBER

Flexibility features the new two-stage crude distillation unit now under construction at the Baytown refinery of the Humble Oil & Refining Co. Designed and constructed by the Foster Wheeler Corp., the installation will be operated on a variety of paraffin crudes and will become an important unit in the distillation division of one of the country's largest refineries.

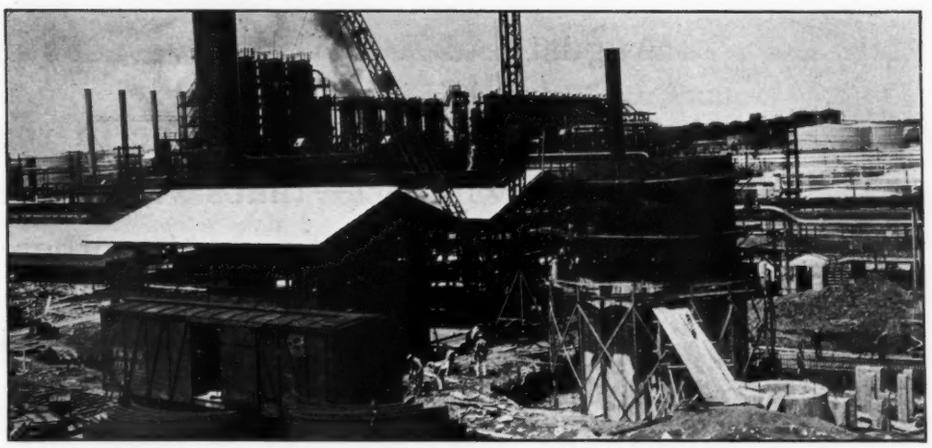
Both atmospheric and vacuum fractionation are provided in the new plant which has a capacity rating of 19,000 bbls. per day. Paraffin distillate will be considered the key product of the two-stage unit. Besides that fraction and two lubricating oil cuts separated in the vacuum stage, a number of various lighter products may be separated, varying with the type of crude run and the specifications of products desired.

Contract for the crude unit was awarded in March of this year, and construction at Baytown was begun early in July. Initial operation is expected to take place in November. At the present time the steel framework for the two furnaces is completed, and work is beginning on the two main fractionating columns. Large reinforced concrete mats are poured for the tower foundations, surmounted by circular concrete bases for the columns.

The wide range of straightrun products obtainable from the new unit will add to its utility in fitting into the variety of operations at the large refinery. In addition, the relatively small supply of many of the available crudes suitable for running to paraffin distillates necessitates a widespread adaptability in such a unit. Included among the stocks which may be charged to the new plant are Salt Flat, Panhandle and East Texas crudes.



Foundations at Baytown are a major part of construction work. In the foreground is a base for a small flash tower, and in the background, a mat foundation is being prepared for the atmospheric tower



New 19,000-bbl. crude unit being erected in Humble Oil & Refining Co.'s Baytown refinery. The base for the 21-foot vacuum tower is shown at right of the furnaces

Specifications of the nine streams cut from the crude in the plant, overlap to a considerable extent, providing the utmost in flexibility for crude distillation. The range of fractions within which the operating schedules may be carried out, is graphically illustrated in the accompanying table.

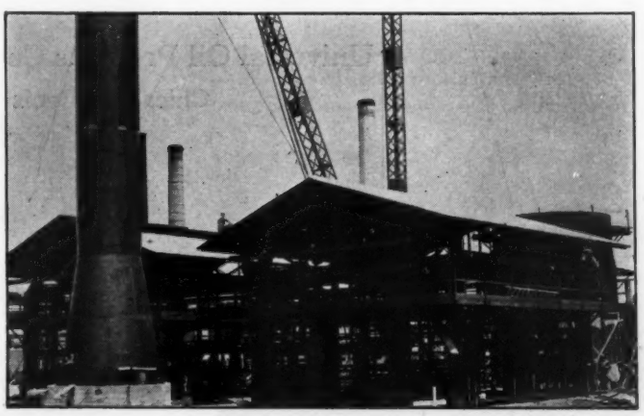
Product—	Available range of cut (per cent crude)
Gas loss	1- 2
Light naphtha	12-25
Heavy naphtha	4-25
Light refined oil	5-15
Heavy refined oil	2-15
First gas oil	2-10
Second gas oil	2-10
Paraffin distillate	15-30
Light lubricating oil	0-10
Heavy lubricating oil	0-10

In addition to its adaptability as a general utility unit, the plant will provide close control throughout, and sharp fractionation. The charging stock, preheated by exchange with tower streams is further heated in the atmospheric crude furnace. That unit is of the conventional Foster Wheeler design, equipped with side burners and central fire walls and convection section. The heated crude is first flashed to a prefractionation column, where light naphtha is stripped overhead. Partially topped crude from the base of the small flash tower enters the feed plate of the atmospheric or main fractionation column.

The remaining cut of heavy naphtha in the crude is removed overhead from the atmospheric tower. Side streams consist of light refined oil resembling kerosene, heavy refined oil and gas oil. Small steam strippers will be installed outside the main tower to provide after stripping of the side cuts as required. Control on the tower allows for variation in the quantity and specification of the different fractions.

After passing through the vacuum heater, which is essentially the same as the atmospheric furnace in design, the reduced crude is flashed directly to the vacuum tower. There a gas oil stream is taken overhead. Paraffin distillate and light and heavy fractions of lubricating oil are fractionated at moderate temperatures under the vacuum, and withdrawn as raw stock for the refinery's lubricating oil division. The lighter refined oils, naphthas and virgin gas oils become charging stock for the various treating and cracking units in the refinery.

The vacuum tower in the new unit measures 21 feet in diameter and 65 feet in height. Fractionation takes place under a wet vacuum as steam is used for stripping.



The two furnaces of the new unit are served by one stack

Dubbscracking week

It was home-made gasoline week in Montana August 1 to 7—by the governor's proclamation

They make more gasoline in the state now than they import—that's why they are celebrating—a year ago it was the other way 'round

In the first half of 1937 Montana refiners made 35 million gallons while 28 million gallons were brought in from outside

Dubbscracking produced 31 million out of the 35 million gallons of Montana-made gasoline

So it's really a Dubbscracked gasoline celebration

If automobile engines could talk, every week would be Dubbscracked gasoline week

In every state

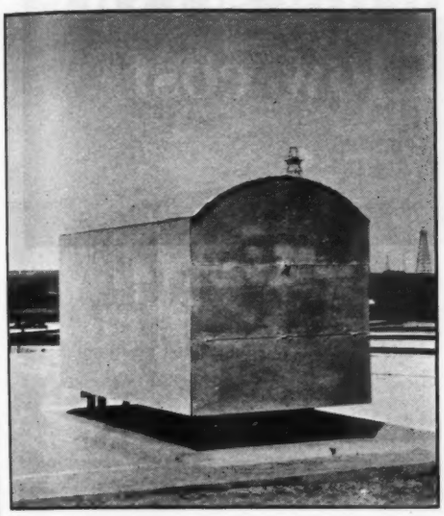
Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

OPERATING IDEAS

Power Equipment Housed

A major oil company operating several electric powers in West Texas has securely housed both the transformers and control



switches for each power in a steel structure with all wiring placed in underground conduits. The housing acts to protect the equipment from sand storms and makes it impossible for birds to cause a short circuit.

Idler for V-Belts Driving Slush Pump

Exemplifying the trend to portable drilling equipment requiring a minimum amount of adjustment in changing locations, one company operating in Louisiana welded the idler for a twelve V-belt drive onto the skids of a motor-driven, unitized shallow rotary rig. The slush pump, which the V-belts drive, is driven from the 110-hp. engine through a clutch transmission.

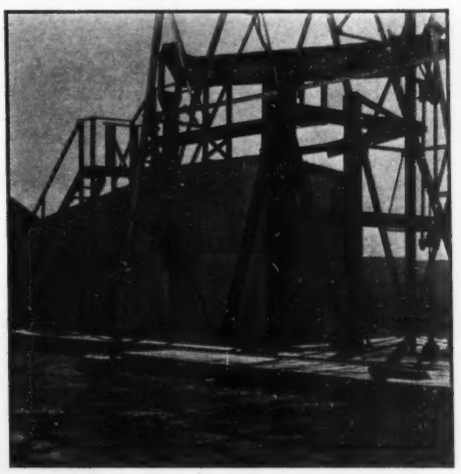
Electric Motor Drive for Pump

The individual pumping unit shown in the accompanying photograph is operated by an

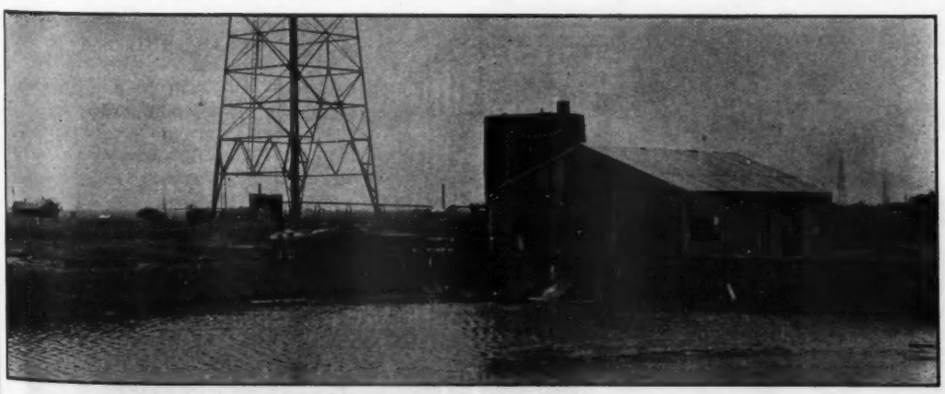
electric motor using purchased power. A compact installation has been devised by using a vertical motor, with the switchboard attached, which drives the pitmans by means of worm gear on the reduction unit.

Steps to Walking-Beam

These steps to the walking-beam are constructed so the pumper may easily go from the power without going around the belt house. This well is located where terrain makes steps on the other side inconvenient.



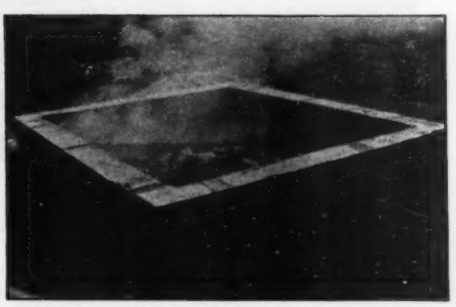
Salt Water Disposal in Edmond Field



In the Edmond field of Oklahoma the operators have had quite a problem disposing of the large amount of salt water produced in some sections of the field. One major operator secured a permit from the state to dispose of salt water from their entire properties into an abandoned dry hole. This well was plugged back to a salt water formation so there would be no danger of the salt water encroaching the producing sands. The salt water is pumped into an open pit and from there is pumped into the well. This eliminates the hazard of surface pollution in time of high water and it makes an inexpensive means of disposing of large quantities of water.

Muffler for Gas Engine

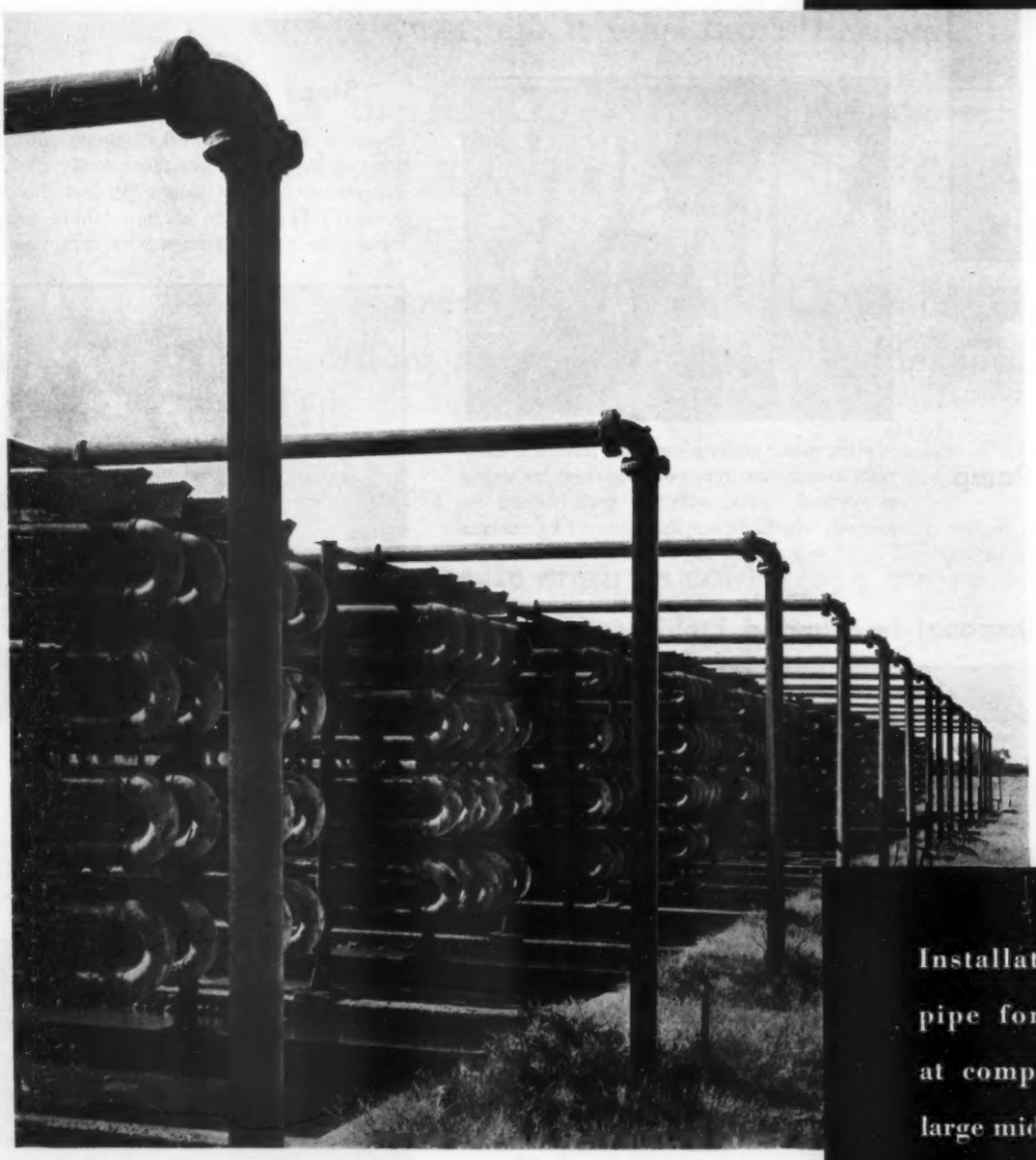
A muffler constructed by building a concrete pit filled with loose rock is shown here. The exhaust pipe enters the pit below the rock.



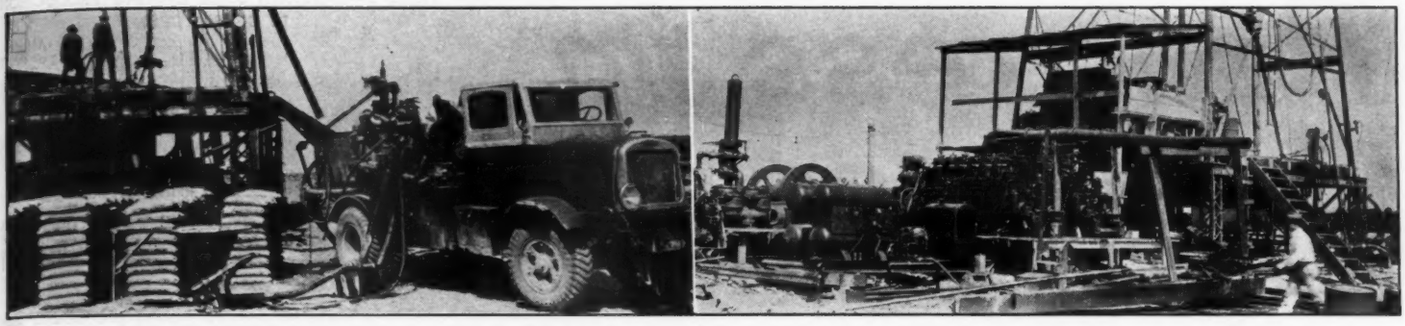
CAST IRON PIPE ASSURES enduring service at low cost

•

CAST iron pipe is a low-cost material with the required corrosion-resistance for long-lived service. Its direct economy shows up in lowered maintenance cost per barrel of crude. Its indirect economy is in the avoidance of interruptions to production caused by failure and replacement of short-lived pipe, and also in its final salvage value. It is a dependable, enduring material with wide application to refinery needs. Cast iron pipe is available in bell-and-spigot, plain or threaded end, and flanged types, or with bottle-tight mechanical joints for high pressures. Diameters from 1¼ to 84 inches. Address inquiries to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 1015 Peoples Gas Building, Chicago.



Installation of cast iron pipe for discharge line at compressor station of large mid-continent refiner.



Running casing in a West Texas well with truck hooked up for pumping cement. At right, modern heavy-duty, full-diesel rig in operation in the Monument field of Lea County, New Mexico

Heavy Drilling Equipment Aids Development in West Texas

By NEIL WILLIAMS

The generally more favorable conditions under which present active development play is being carried on are materially expediting the proving up of petroleum reserves in the Permian Basin district of West Texas and southeast New Mexico. Speeding up of exploration and drilling is being made possible and with greater knowledge of the area and it potentialities, availability of more adequate equipment and facilities, and improved practices, more effective results are being obtained.

The advent of newer and heavier types of equipment is playing an important part in the expedition of development. While cable tools and machines still are being used on an extensive scale in some places, large, modern rotary rigs are finding increasing usage. Use of spudders and machines and other lightweight drilling equipment is confined largely to the shallower fields. Cable tools continue to have a place, but for general development the much speedier rotary equipment steadily is supplanting other forms of drilling.

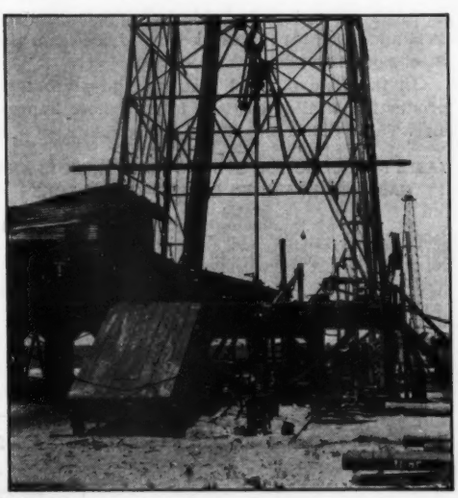
With rotaries, operators are reducing drilling time for wells as much as 50 per cent or more. In the drilling up of a field in which competitive offset drilling is necessary and in which time is a factor, this is important. Some operators still prefer to complete with cable tools, drilling the wells down to the producing horizon with rotary rigs, but with the perfecting of pressure drilling, the use of rotaries for drilling in is steadily growing.

Before the development of pressure drilling, drilling of wells in with rotary rigs was not considered good practice because the drilling mud tended to seal off possible producing formations and because the porous zones and other formational characteristics were not readily recognized. Passing up of oil zones was possible and completion of wells after mud or water had come in contact with the formation in many instances was ineffective. Thus, rather than go to the trouble and expense of moving off rotary equipment after drilling to the producing horizon, and replacing with cable tools, operators generally resorted to cable tools exclusively.

Pressure drilling is making possible the drilling in with rotaries using oil for drilling fluid, thus preventing contamination of the producing formation with mud or water, and enabling accurate determination of oil zones and contacts. Consequently, due to the faster time made by rotary drilling, use of rotary rigs is finding increasing favor and is resulting in expediting development.

In West Texas and southeast New Mexico are to be found some of the largest and most complete rotary rigs in existence, including not only steam outfits, but also mechanical jobs, among which are many full diesels, diesel-electrics and heavy-duty gasoline engine rigs. Scarcity of water for boiler use has made mechanical rigs particularly adaptable.

With use of heavier and more adequate equipment and facilities in drilling and completion of wells, operators are exerting greater control over formation conditions and natural hazards, and are able to carry on development with greater assurance of safety and with greater rapidity. The majority of drilling is being done with contract rigs but both contractors and operating companies are recognizing more than ever before the importance of maintaining equipment so that the highest operating efficiency might be obtained.



Drilling in well under pressure in the West Texas-Southeast New Mexico district

Adoption of more effective completion practices also is serving to facilitate development and increase productive potentialities of the district. Chief among these practices, which have come into use within recent years and with which operators are becoming increasingly proficient, are pressure drilling and acid treating. As previously stated, pressure drilling is making possible drilling into the producing formation with rotary equipment without contamination of the formation with drilling mud or water. Acid treating is making possible the recovery of oil from zones which ordinarily would be considered as having too low porosity to produce. Thus, development is being extended to zones and areas which otherwise might be passed up as unproductive. In a number of instances, fields once considered defined, are being extended, and areas once drilled and condemned are being reclaimed.

The increasing application of geophysics, with improved instruments and methods and growing proficiency in technic and interpretations, also is facilitating development and opening of additional reserves in the district. With geophysics, the more or less haphazard wildcatting and attendant uncertainties and hazards characteristic of early development in the district are being eliminated. In recent months operators have been particularly successful in locating and working out of structures and an increasing number of fields are being opened on geophysically discovered structures.

Many difficulties and handicaps continue to face operators in this district. Among these are the scarcity of water in many areas, and the hard formations. Where water is available but not suitable as it is for use, operators have been able to develop methods and obtain facilities for treating the water satisfactorily. Hard formations have made digging slow and difficult, but operators, with heavier and more adaptable equipment, have been able to make substantial reductions in drilling time.

Progress in METALS

By W. L. NELSON

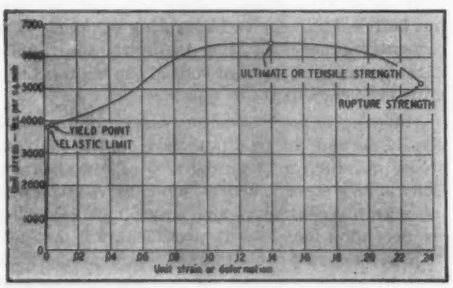
Metallurgical Terms

Strength of Steels

The following definitions should be useful in avoiding confusion concerning the many terms or strengths that are used in describing the strength of materials. Refer to accompanying stress-strain diagram.

Rupture Strength.—The stress that is sustained by a material at the moment of rupture. The stress is computed by dividing the total load that is applied to the specimen at the time of rupture by the cross-sectional area of the original specimen.

Ultimate Strength or Tensile Strength.—The maximum stress that can be applied to a speci-



Stress-strain diagram illustrating various terms when a material is under load

men. Computed by dividing the largest load that is carried by the specimen by the original cross-sectional area. For ductile materials the ultimate strength may be greater than the rupture strength because during the strength test the specimen may stretch so fast at high loads that the load cannot be increased as rapidly as the specimen stretches.

Elastic Limit or Proportional Limit.—The maximum stress that a material can withstand without suffering permanent deformation or stretch. At any stress under the elastic limit the material will return to its original dimensions after the load is removed.

Yield Point.—For practical purposes the yield point and the elastic limit are identical. As the elastic limit is reached during a tension test, the amount of deformation, caused by the addition of more load, becomes greater—or the material yields to the load. In the test, this point is indicated by the fact that the balance beam drops and in so doing notifies the operator that the material is no longer elastic.

Endurance or Fatigue Limit.—The maximum stress that a material can sustain without rupture, under such a condition that the stress or load is applied a large number of times, as in a sucker-rod or rotating shaft. Under such conditions the allowable stress is far lower than the tensile strength.

Corrosion Fatigue Limit.—This property is fundamentally the same as the fatigue limit except that the material is exposed to corrosive conditions as well as a reversal of stress. Rupture by fatigue appears to take place by the development of minute cracks in the material and hence the corrosive agent can enter by means of these cracks.

Creep Limit or Creep Strength.—The maximum stress that a material can withstand without exceeding a specific rate of stretch or creep. The rate of stretch that is widely used in testing tube materials, is 1 per cent in 10,000 hours. Steels do not creep (gradually stretch) to any extent at temperatures under 800° F. and hence creep strengths are always determined at elevated temperatures.

The following table indicates relative values of these strengths for a 0.2 carbon steel:

STRENGTHS OF 0.2 CARBON STEEL

Kind of strength—	Strength lb. per sq. in.
Rupture strength	52,000
Tensile or ultimate strength	64,000
Elastic limit	38,000
Fatigue strength	30,000
Corrosion fatigue	*14,000
Creep strength at 900° F.	†17,000
Creep strength at 1,100° F.	†2,000

*Dependent on specific conditions. †Killed carbon steel, 1% in 10,000 hours.

Alloy Steel Production Increase

The production of alloy steels as a whole has not increased greatly during the past few years but the production of the stainless steels several of which are widely used in the petroleum industry, has increased greatly since 1934.

The American Iron and Steel Institute and other organizations have recently published data on the total steel production of the United States and these data as compiled by E. F. Cone of Metals and Alloys are given in Table 1. The data for 1934, 1935 and 1936 were estimated by advice from the Steel Founders Society of America.

In the field of steel castings, the percentage production of alloy castings is even more impressive. These data are presented in Table 2.

TABLE 1—PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS IN UNITED STATES—GROSS TONS

	Total alloy steel	Total steel	Per cent alloy steel
1909	181,980	23,956,021	0.75
1910	567,819	26,094,919	2.17
1915	1,021,147	23,955,021	3.17
1920	1,660,292	42,132,934	3.94
1925	2,432,973	45,393,524	5.36
1930	2,443,311	40,699,483	6.00
1931	1,455,913	25,945,501	5.61
1932	798,604	13,681,162	5.84
1933	1,547,183	23,232,347	6.65
1934	1,673,900	26,417,629	6.34
1935	2,184,300	34,438,868	6.35
1936	3,017,600	48,422,030	6.23

TABLE 2—AMERICAN STEEL CASTING PRODUCTION IN GROSS TONS†

	Castings	Alloy	Alloy per cent
1921	559,713	40,255	7.2
1926	1,357,558	146,101	10.7
1929	1,583,040	192,920	12.2
1930	1,104,215	126,128	11.5
1931	516,579	89,903	17.4
1932	216,760	41,044	18.8
1933	338,061	71,783	21.2
1934	*425,000	61,625	14.5
1935	*417,600	64,700	15.5
1936	*812,500	134,000	16.5

'Steel Founders' data in Column 3 in Table 1 in gross tons. †This table, supplemented as indicated, is from the article on Production Data of the American Steel Foundry Industry, in the April issue of Metal Progress.

The amount of stainless steel production appears to be rapidly turning to three standard alloys, mainly 18-8 chrome nickel, 12-14 chrome, and 16-18 chrome. In fact, all other high chrome or chrome nickel alloys suffered a decrease in 1936, as indicated in the following tabulation, which was taken from data of the American Iron and Steel Institute:

	Tons of production—		
Type steel—	1934	1935	1936
18-8 chrome nickel	19,777	24,711	39,107
12-14% chromium	8,902	13,232	23,598
16-18% chromium	8,077	12,837	21,288
All other high-chrome or chrome nickel alloys	13,161	14,917	6,973
Total	49,917	65,697	90,966

Metallurgical Terms

Hardness of Steels

The property of hardness is an elusive one to define or qualify by means of laboratory tests, although several standard methods of testing have been developed. The oldest, cheapest and most common test is the file test. The file must be of standard hardness, it must be applied in a uniform slow motion and at the proper angle, and must be used by an experienced man or the results will be of little significance.

In the Scleroscope test a diamond-tipped hammer is permitted to drop and rebound from the material. The height of rebound is noted as a measure of hardness. Thus, this test measures in part the resiliancy or springiness of the material and particularly the resiliance of the surface material.

The Brinell test is even different in principle and is a measure of the resistance to indentation. The test is used so extensively that "hardness" has almost come to mean "resistance to indentation" to most metallurgists. The Brinell machine is essentially a small hydraulic press by means of which a load of 500 kilograms (also 3,000) can be applied to a small steel ball which is pressed into the surface of the material. The diameter of the indentation can be measured by means of a simple microscope. Thus, the Brinell test is closely related to the compressive strength of the material and indirectly to the tensile strength.

The Rockwell test is somewhat similar to the Brinell test at least in principle. Steel balls or a conical-shaped diamond "brale" are caused to penetrate the material by applying a constant load at a standardized rate. The depth of penetration is measured. The Rockwell test more nearly measures the condition within the metal than any of the other tests.

From the above it is evident that hardness is not a distinct property. As a general indication of the hardness numbers by the several instruments, the following tabulation is taken from a paper by Joseph G. Gagnon in Metal Progress, page 161, October, 1936.

VARIATIONS IN HARDNESS OF S.A.E. STEELS TESTED WITH DIFFERENT MACHINES

Steels*—	4620	4620	1040	1040	1035	1035	5145	4640	4130
Brinell	235-241	229-235	212-217	223-269	197-241	241-285	269-277	269	269
Rockwell C	18-25	18-25	14-24	17-31	12-27	20-32	27-30	23-29	25-28
Rockwell B	97-102	97-104	93-103	96-109	92-108	100-108	104-107	103-106	103-105
Scleroscope	45-47	42-48	38-46	44-48	36-53	46-53	48-54	48-53	49-52

*More details of stocks and of heat treatment are given in the original reference.

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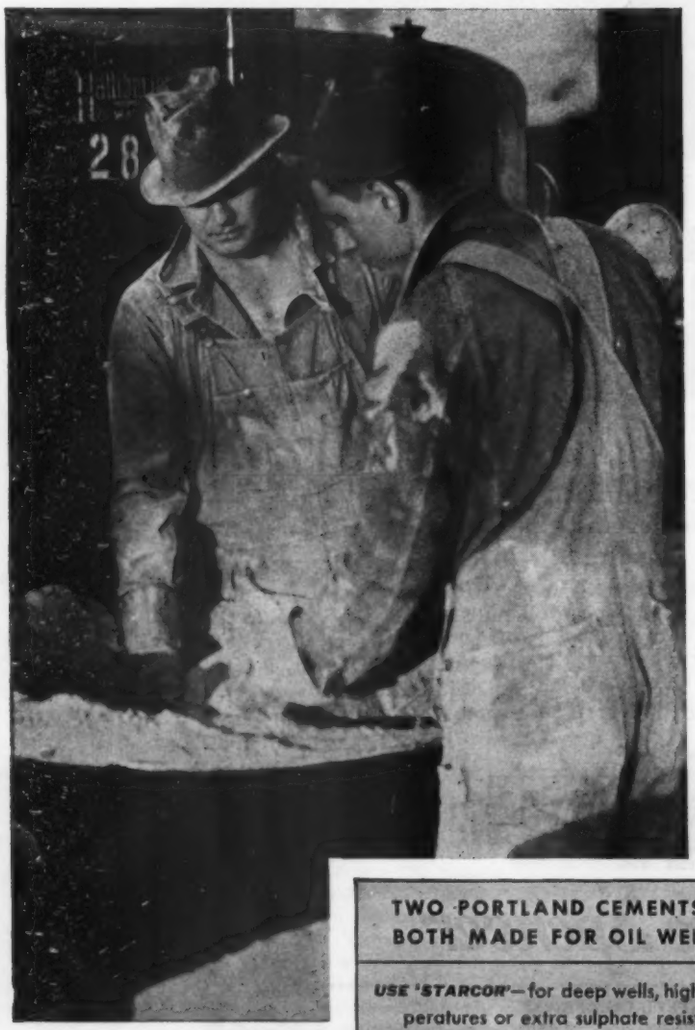

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*Reg. U. S. Pat. Off.

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Waste Heat Recovery From Diesel Engines

By GLENN C. BOYER
Burns & McDonnell Engineering Co.*

***A.S.M.E.*—Presented at the National Oil and Gas Power Meeting, Pennsylvania State College, August 18 to 21, 1937**

The present-day diesel engine producing a brake horsepower hour with from 7,000 to 8,000 B.t.u. of heat in the fuel is one of the most efficient prime movers with which we deal. Since the horsepower produced is equivalent to only about one-third of the heat supplied the engine in the form of fuel oil, and since engineers are constantly striving to increase the efficiency and economy of equipment with which they deal, it is not strange that much thought has been given to that other two-thirds of the diesel's fuel that literally "goes up in smoke."

This paper has been developed during the process of clarifying for the writer's personal use such data, scattered as it is, as exists pertaining to the possibilities for reclaiming part of the heat normally rejected by the diesel engine. In the course of this clarification process, it has become increasingly apparent that the problem of waste heat utilization or recovery involves a study of the characteristics of the machine producing the heat as well as the means for reclaiming it. As a consequence, this paper has been divided into two parts following the divisions previously mentioned.

For purposes of this paper the term "waste heat" includes all the heat in the fuel supplied to the engine that is not converted into mechanical energy.

The diesel engine is primarily a machine for converting the heat energy of a liquid fuel into mechanical energy. In the conversion, only about one-third of the available energy in the fuel appears in mechanical form, while the remainder appears in the exhaust, cooling water, and radiation. The utilization of any or all of the heat in the fuel not used in producing mechanical work offers many possibilities for increasing the overall fuel efficiency.

Consider a present-day mechanical injection diesel engine having a full-load rating of 75 hp. per cylinder. The heat supplied to this engine in the form of fuel is accounted for as follows:

TABLE 1—HEAT BALANCE FOR DIESEL ENGINE

Engine load—	1/4	1/2	3/4	4/4
Useful work (per cent)	25	32	34	35
Cooling water (per cent)	23	20	20	19
Exhaust (per cent)	22	21	20	20
Radiation, etc. (per cent)	30	27	26	26
Total fuel energy (pct.)	100	100	100	100

Thus at full load, 35 per cent of the heat energy in the fuel is converted into useful work. Such a portion of the remaining 65 per cent as can be put to useful service represents a distinct saving and results in improving the overall heat utilization.

In order that a portion of this heat normally wasted in diesel engine operation may be utilized, it is necessary to know its magnitude and characteristics. These qualities are established by means of:

1. Heat balance for the particular engine under consideration.

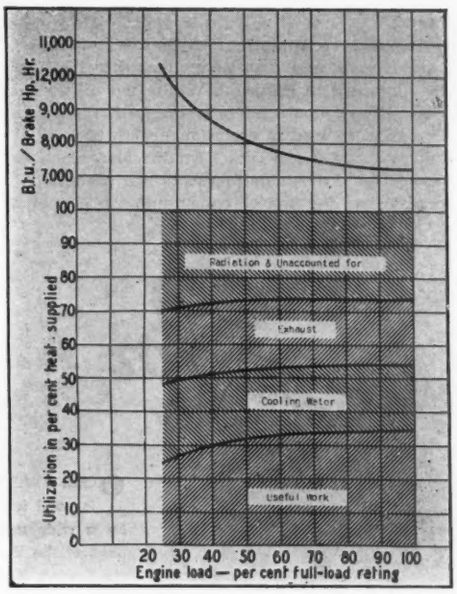

Fig. 1—Heat balance of a diesel engine having a full-load rating of 75 hp. per cylinder

2. Fuel oil consumption guarantees at full and fractional loads.

3. Cooling water temperatures on and off the engine at full and fractional loads.

4. Exhaust gas quantities at full and fractional loads.

5. Exhaust gas temperatures at full and fractional loads.

The characteristics of these various items will be considered in the order given.

A typical heat balance is contained in Table 1, and is reproduced in graphical form in Figure 1. While the per cent distribution of the heat in the fuel varies somewhat from these data for various makes, and horsepower ratings of engines, these data do represent fairly average results. The area between the curve of useful work and the line of 100 per cent of heat supplied represents waste heat. The portion shown as "Radiation and Un-

*Note: Statements and opinions advanced in papers are to be understood as individual expressions of their authors, and not those of the society.

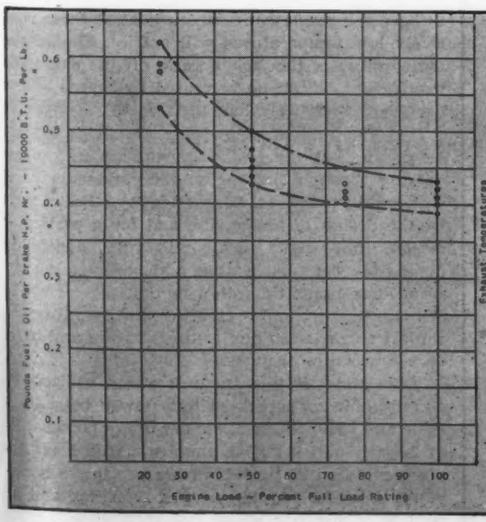

Fig. 2—Diesel fuel oil consumption

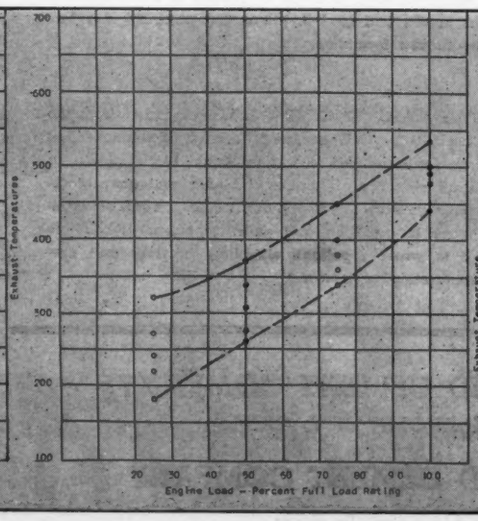

Fig. 3—Temperatures of 2-cycle engines

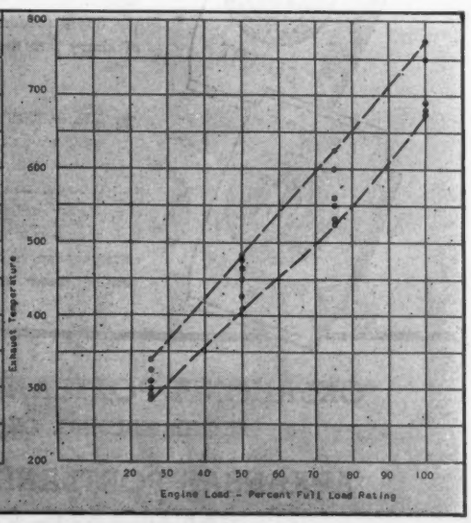

Fig. 4—Temperatures of 4-cycle engines

accounted for" cannot be utilized except as it appears as sensible heat for warming the engine room. For waste heat required elsewhere than in the engine room, that in the "Cooling Water" and "Engine Exhaust" are the only sources. At full load they represent 39 per cent of the heat supplied to the engine in the example given, and this percentage is fairly constant from one-half to full load.

Fuel oil consumption guarantees for several makes, types, and sizes of modern diesel engines are contained in Figure 2. While fuel oil guarantees are now made for only one-half, three-quarters, and full load in accordance with the "Standard Practices of the Diesel Engine Manufacturers Association," the manufacturers are requested to furnish data for fuel oil consumption at one-quarter load on all diesel engine projects handled by the consulting engineering organization with which the writer is associated. This Figure 2 shows that diesel engines in excess of 200 hp. will have relatively the same fuel oil consumption guarantees. Thus at full load, the variation is 0.04 pound, at three-quarter load 0.05 pound, and at half load 0.07 pound. Since all fuel oil guarantees are now quoted subject to a 5 per cent tolerance, the information contained in Figure 2 for three-quarters and full-load conditions will practically all fall within the tolerance limit.

The variation in B.t.u. input to the engine per brake horsepower from maximum to minimum is shown in the following table and based upon the data contained in Figure 2.

Cooling water temperatures at the outlet from the engine will vary, depending upon the type and design of the cooling water system employed. A temperature of from 115° to 120° F. off the engine is generally considered the upper limit for an open cooling system, while for closed cooling systems the upper temperature limit for water off the engine is considered to be 150° F. The temperature rise between cooling water inlet and outlet will vary from 10° to 30° F. with the present-day tendency toward the lower figure. It is claimed that engine performance is improved if the cooling water off the engine is in the neighborhood of 140° F. and the temperature rise of the water through the engine is limited to 15° F.

TABLE 2—VARIATION IN HEAT INPUT TO DIESEL ENGINES

Engine load—	1/4	1/2	3/4	4/4
B.t.u. per brake hp. max. . .	11,790	9,500	8,500	8,160
B.t.u. per brake hp. min. . .	10,000	8,160	7,600	7,400

If the heat transferred from the engine to the cooling water is to be utilized at the temperature at which it leaves the engine, then it must be utilized for purposes in which heat at these relatively low temperatures will suffice. Should the temperature of the jacket water off the engine be insufficient, it can be increased by means of the heat in the engine exhaust.

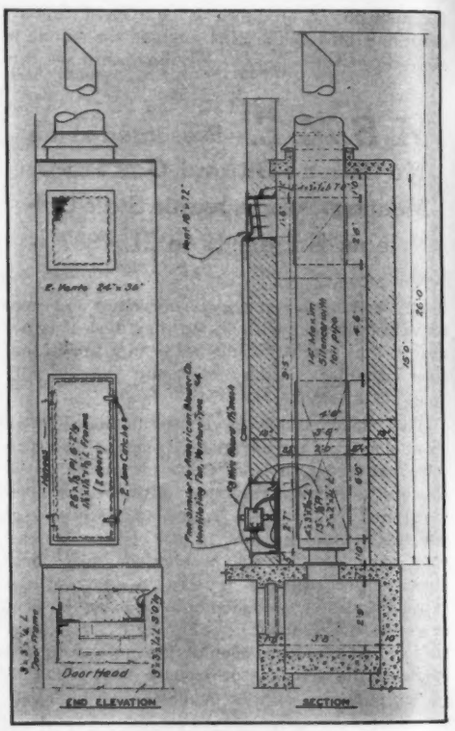

Fig. 5—Simple waste heat reclaiming system

The quantity of exhaust gas available from a diesel engine is determined by the quantity of air passing through the engine for combustion and scavenging purposes. This quantity of air is set by the design of the engine and for a particular design, the weight of air will vary, depending upon the inlet temperature and barometric pressure. Thus, while the following data are for standard temperature and pressure conditions, they are subject to variation due to temperature and barometric pressure changes.

One diesel engine manufacturer utilized 10 pounds of air per brake horsepower hour in 4-cycle and 23.5 pounds of air per brake horsepower in 2-cycle solid injection engines at full load. Another requires 22 pounds of air per brake horsepower hour in 2-cycle pump scavenging, and 18 pounds of air per brake horsepower in 2-cycle crankcase scavenging solid injection engines at

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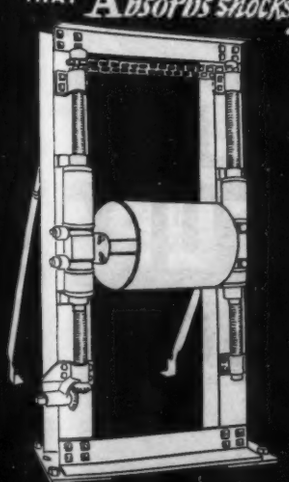

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full load. The total quantity of air supplied to any diesel engine remains practically constant at all loads.

The following table has been prepared showing quantities of air required for various types of engines:

TABLE 3—AIR REQUIREMENTS DIESEL ENGINES

Type engine—	Lbs. air required at full load: Per lb. fuel	Per hp. hr.
4-cycle solid injection	25–32 5	10–13
4-cycle air injection	30–37 5	12–15
2-cycle solid injection pump scavenging	55–58 7	22–23 5
2-cycle solid injection crankcase scavenging	45	18

The theoretical weight of air for combustion per pound of fuel oil is given in the following table covering fuel oils from the major producing fields:

TABLE 4—THEORETICAL QUANTITIES OF AIR FOR OIL COMBUSTION

Source—	Specific gravity	B.t.u. per lb. oil	Lbs. air per lb., oil theoretical
Texas	0 907	19,230	14 15
Mid-Continent	0 892	19,376	14 00
California	0 971	18,820	14 08
Mexico	0 986	18,720	13 32

It is readily apparent from a comparison of Tables 3 and 4 that the quantity of air required by a diesel engine per pound of fuel oil consumed is considerably in excess of the theoretical amount required for combustion of the fuel. It is also apparent from Table 3 that a 2-cycle engine requires about twice the amount of air that a 4-cycle engine needs.

In addition to knowing the quantities of gases discharged through the exhaust in a given time, it is necessary to know the variation in exhaust gas temperatures at various engine loads. Figure 3 shows the range of exhaust temperatures for 2-cycle solid injection engines, while Figure 4 gives the same information for 4-cycle solid injection engines. Exhaust temperatures for air injection engines, both 2-cycle and 4-cycle, will range somewhat lower than those shown in Figures 3 and 4 due to the fact that more air per pound of fuel is, in general, required for air injection than for solid injection engines.

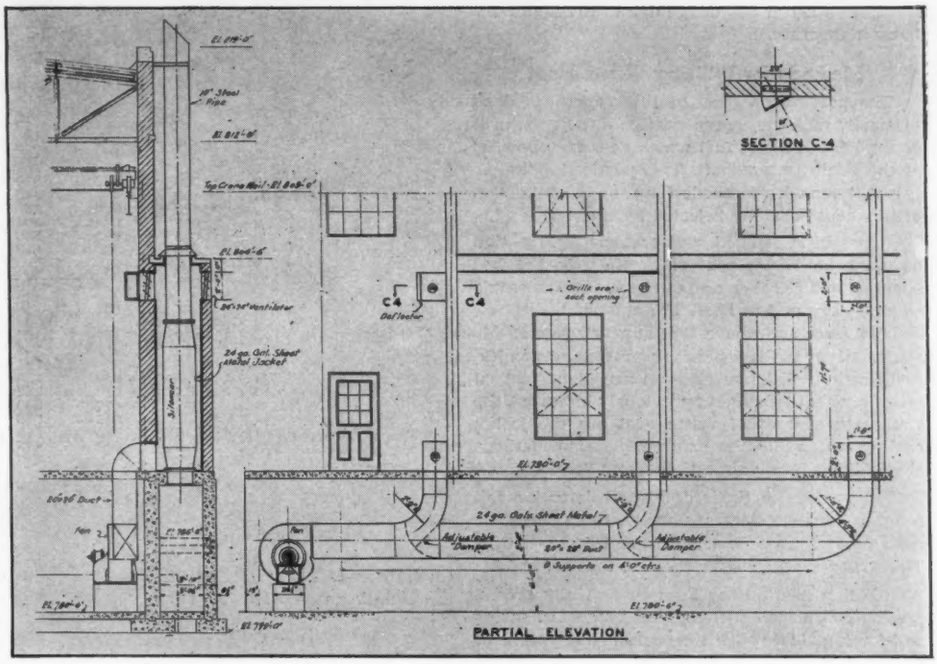

Fig. 6—Waste heat reclaiming system for several engines

These figures indicate higher exhaust temperatures from 4-cycle engines. Here again, the reason lies in the fact that 4-cycle engines in general use less excess air for scavenging and as a result run higher exhaust temperatures.

Where steam is being produced from the heat in a diesel engine exhaust, the 4-cycle engine

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12:15 am Ar. St. Louis Lv. *11:59 pm

*Sleeping car passengers may retire 9:30 pm.

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shows to a better advantage due to the higher exhaust temperature.

Methods for Utilizing Waste Heat

The previous portion of this paper has dealt primarily with the characteristics of the two-thirds of the heat in diesel fuel which does not show up at the engine crankshaft. This portion of the paper will consider methods for utilizing a portion of this heat normally rejected by the engine.

It has been claimed, and perhaps rightly, that as much as 85 per cent of the heat in the fuel supplied to a diesel engine can be utilized as crankshaft energy and as heat. The amount of heat reclaimed over and above that appearing as crankshaft energy will depend upon the economical justification of the investment necessary in heat reclaiming equipment. As previously indicated, the two main sources of waste heat are the jacket cooling water and the exhaust. Several methods are available for obtaining heat from these sources.

The various methods of heat reclamation fall roughly into two classes; namely, those which do not employ a waste heat boiler, and those that do. The writer shall consider them in that order.

Building heating has been successfully accomplished by enclosing the engine exhaust silencers and forcing air through the enclosure by means of a fan. One method for accomplishing this is shown in Figure 5. While no exact formulas are available for calculating the probable heat recovery from such a system, tests at Bloomington, Ill., show that with engine exhaust temperatures of 320° F., inlet heating air temperature of 71° F., and outlet temperature of 115° F., a heat recovery of 138,000 B.t.u. per hour was realized when circulating 3,000 c.f.m. of heating air around the silencer. During this test, the engine was operating at approximately half load of 320 hp. From these data it appears that heating systems of this character will serve satisfactorily and furnish sufficient heat for a power plant building when 5 cubic feet of air per minute per rated engine horsepower are circulated around the silencer. This "rule-of-thumb" guide in designing a heating system may not always prove out in all cases. It appears to the writer that the problem of designing a satisfactory heating system as shown in Figure 5 resolves itself into a question of passing sufficient air over the outside of the silencer in a given time to absorb up to a maximum of 30 per cent of the heat in the exhaust gas. Putting this into the form of an equation we obtain

$$0.30\ H = 0.01659\ V\ (120 - t)$$

Where H = Total heat in B.t.u. passing through the exhaust silencer per minute.

V = Cu. ft. of heating air circulated around silencer per minute.

t = Inlet temperature of heating air.

This question is based upon the assumption that the temperature of the hot air entering the room would be 120° F., with the heat carried per cubic foot of dry air at this temperature being 0.01659 B.t.u. per degree F.

In installations where several engines are employed, the writer has proposed an arrangement for building heating as shown in Figure 6. This scheme utilizes a single motor driven blower and connecting duct work from the blower to all silencers. Dampers in the duct work allow the air circulation to be directed to the active silencers, or to be divided between the silencers in such a manner as to secure the most effective heat distribution in the building. An installation of this type is now under construction in a power plant with three 650-hp. diesel engines. The fan provides 4,500 c.f. air per minute at a static pressure of 1 inch of water. The entire cost of fan, duct work, brick enclosures around the silencers, and adjustable louvers was approximately $750, a low cost for the heating system in a building approximately 40 by 70 feet.

Commercially designed air heaters have been used for reclaiming heat from the exhaust gases. Data available on these units indicate that as much at 35 per cent of the available heat in the engine exhaust at full load can be reclaimed by their use.

Hot water may be obtained from the heat in the exhaust through the installation of a pipe coil in the engine muffler, or a water jacket around the exhaust line. A pipe coil consisting of 2 feet of 1¼-inch pipe per rated engine horsepower when operating with a 2-cycle engine will recover approximately 400 B.t.u. per horsepower output at full load or about 27 per cent of the heat in the exhaust. This is on the basis of clean tubes. When such coils are installed in exhaust lines or mufflers, provisions should be made to facilitate removal for cleaning. A hot water jacket constructed around the engine exhaust line will absorb roughly 3,000 B.t.u. per square foot of pipe in contact with the water. This figure is based upon an engine operating at full load, exhaust temperatures ranging between 400° and 450° F. and a heating area of 0.1 square foot per rated engine horsepower. At fractional loads on the engine the heat transfer to water from the exhaust gas will be less due to the lower exhaust temperatures. This applies both to the pipe coil and the water jacket.

TABLE 6—WASTE HEAT BOILERS—PERFORMANCE DATA

4-CYCLE DIESEL ENGINES

Hp.	Lbs. steam per hr. full load — 5 lbs. per sq. in.	10 lbs. per sq. in.	15 lbs. per sq. in.	Lbs. steam per hr. ¾ load — 5 lbs. per sq. in.	10 lb. per sq. in.	15 lb. per sq. in.	Lbs. steam per hr. ½ load — 5 lbs. per sq. in.	10 lb. per sq. in.	15 lb. per sq. in.	Sq. ft. Ht. surf.
75	77	74	72	60	58	56	44	42	40	72
100	92	89	87	72 5	70	67	53	50 4	48 5	72
200	154	150	147	122	118	115	90	85	81 5	72
300	212	205	199	167	160	156	122	116	111	72
400	327	316	309	257	248	240	188	178	171	144
500	392	380	372	310	298	290	226	215	205	144
600	483	466	455	380	366	354	277	265	253	192
700	550	530	520	432	417	404	317	301	287	192
800	638	617	600	504	481	468	368	348	334	240
900	700	675	664	550	530	515	414	383	366	240
1,000	780	750	735	612	588	572	450	425	416	288

2-CYCLE DIESEL ENGINES

75	63	60	57	40	37	34	17	14	12	72
100	78	74	71	49	45	42	21	17	14	72
200	165	157	150	102	94	88	44	36	30	144
300	229	217	208	144	133	124	60	50	42	144
400	300	285	273	191	176	165	80	66	55	192
500	370	351	336	234	216	202	98	80	68	240—
600	450	427	410	282	260	244	118	98	82	288—
700	525	498	477	330	305	285	139	115	96	336
800	600	570	545	378	358	320	158	130	109	384
900	675	640	615	425	393	368	178	147	123	432
1,000	750	710	682	475	440	410	198	163	136	480

BASIC DATA:

Gas Flow
4 cycle = 12 lb. per rated hp.
2 cycle = 20 lb. per rated hp.

Gas Temperatures

	4 cycle	2 cycle
Full load	= 700° F.	500° F.
¾ load	= 600° F.	400° F.
½ load	= 500° F.	300° F.

Feed water 140° F.

Heat Reclaiming System

So far the only source of waste heat considered has been the diesel engine exhaust. A novel heat reclaiming system utilizing heat from the cooling water has recently come to the author's attention. In a manufacturing plant utilizing diesel engines for its power supply, heating facilities for the building and the cooling water system for the diesel engines are combined. The cooling water is circulated through six unit heaters located in various parts of the plant. Each unit heater is equipped with a fan for forced air circulation, and two sets of adjustable louvers thermostatically operated. One set of louvers is on the face opposite the fan and when open the circulated air is forced out into the room. The other set of louvers is in the top of the unit heater and when open circulating air is forced out through a ventilator in the roof.

When the temperature inside the building falls below 70° F. the thermostat closes the louvers admitting air into the room and opens the louvers in the top of the heater thereby forcing the warm air out of the building.

This arrangement has the following features:

1. Eliminates a cooling tower for conditioning jacket water.

2. Provides a closed cooling system for the diesel engines installed.

3. Provides heat for the plant throughout the heating season.

4. Provides ventilation for the plant during the remainder of the year.

Since the diesel engines operate only during the day, two small oil-fired heating boilers are installed for maintaining room temperatures at night during the heating season.

A heating coil, installed in the exhaust pit, common to the engines in the plant, provides suf-

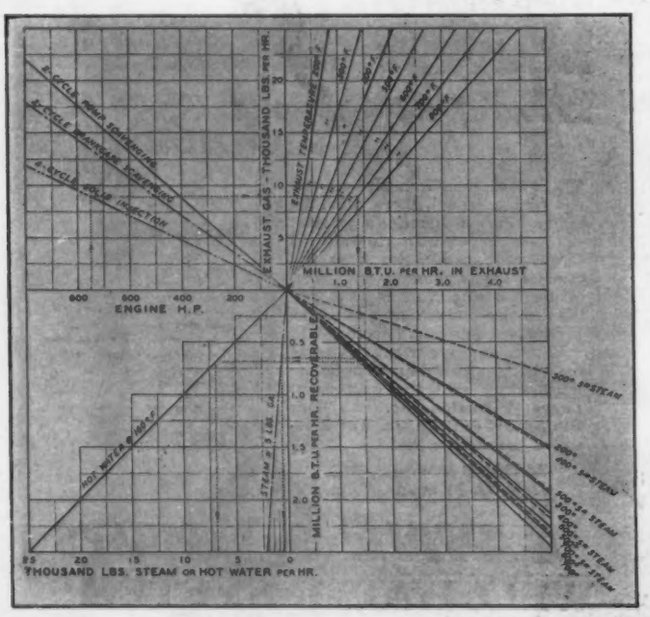
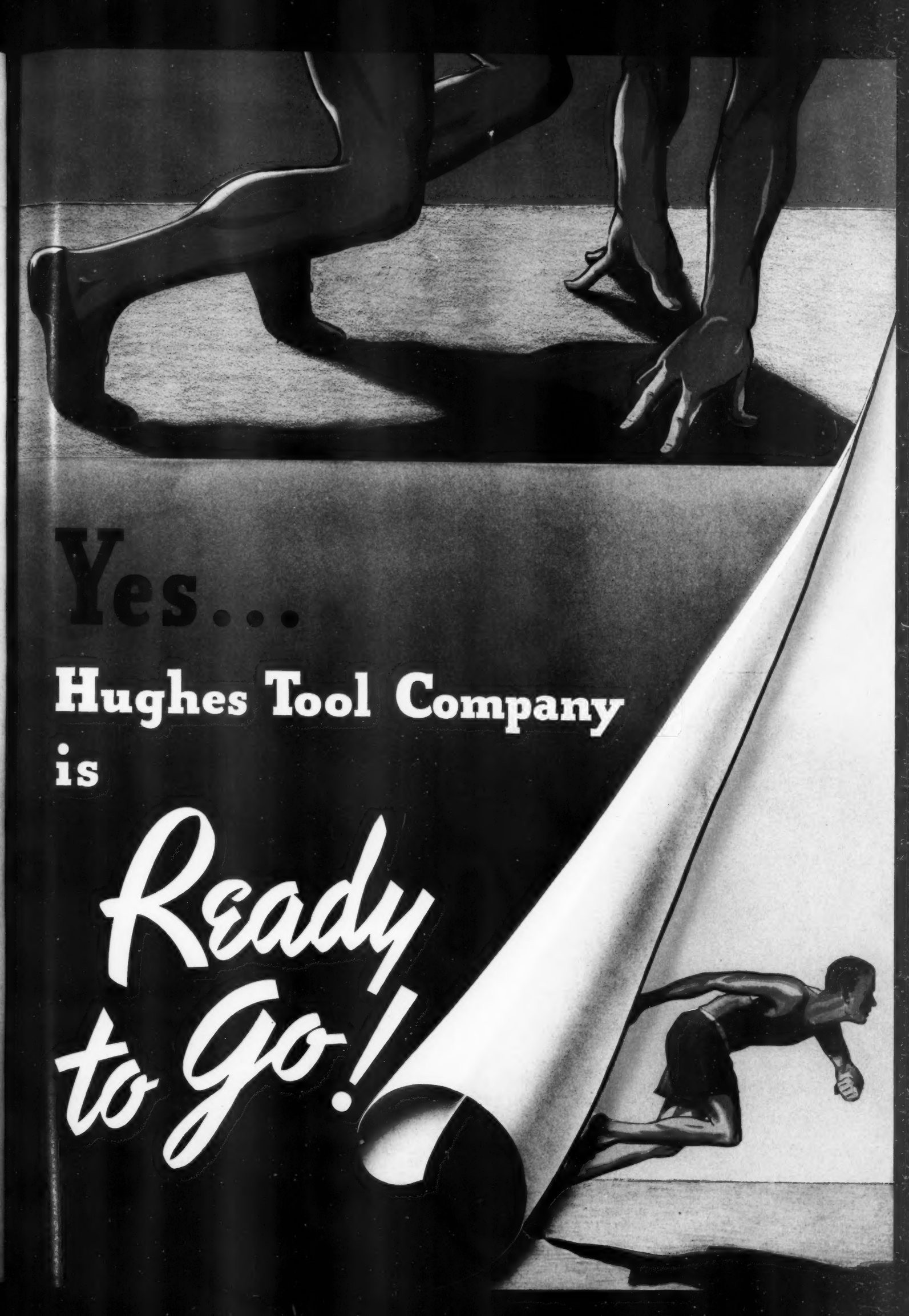


Fig. 7—Chart for determining economical heat recovery from engine exhaust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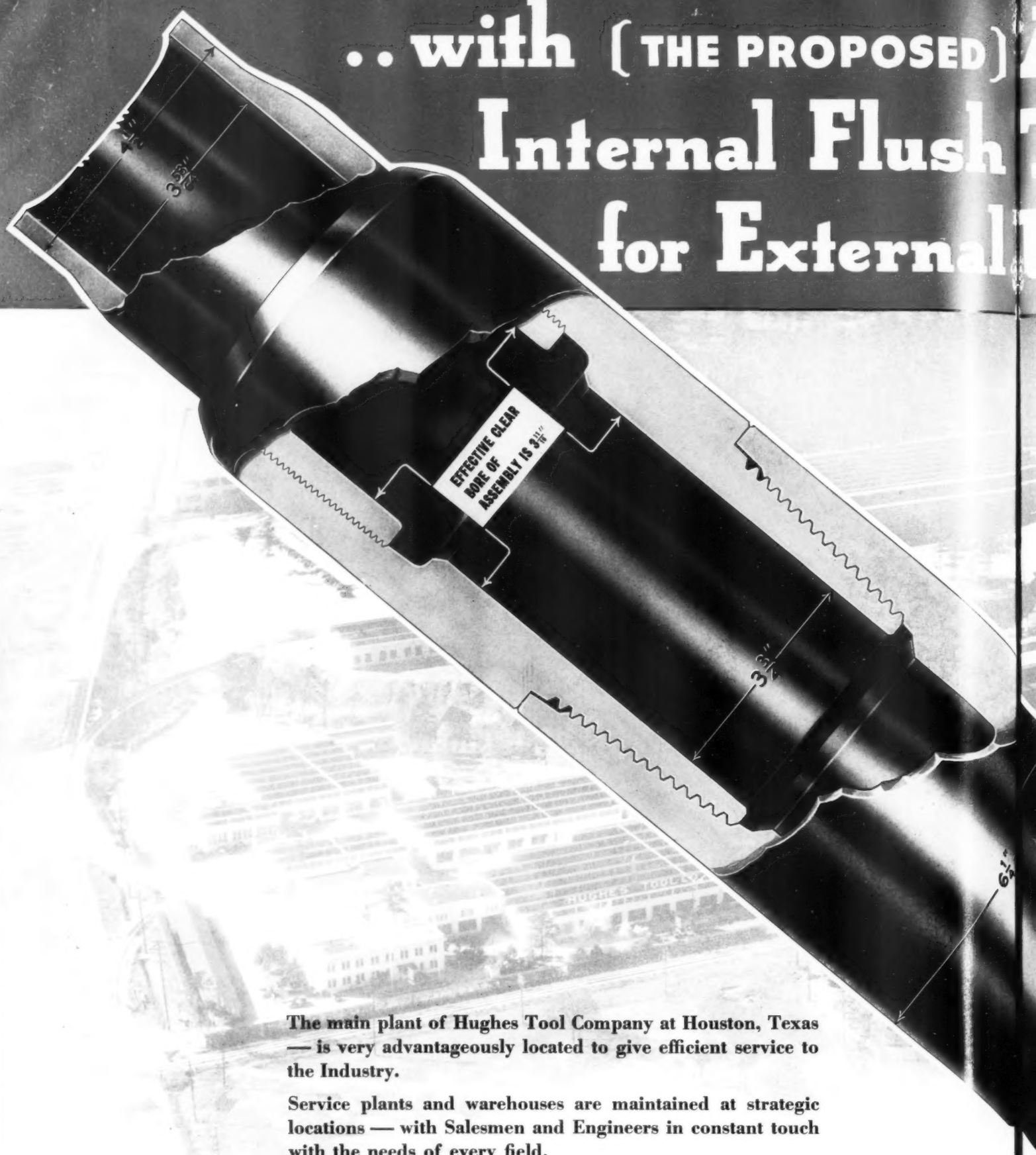

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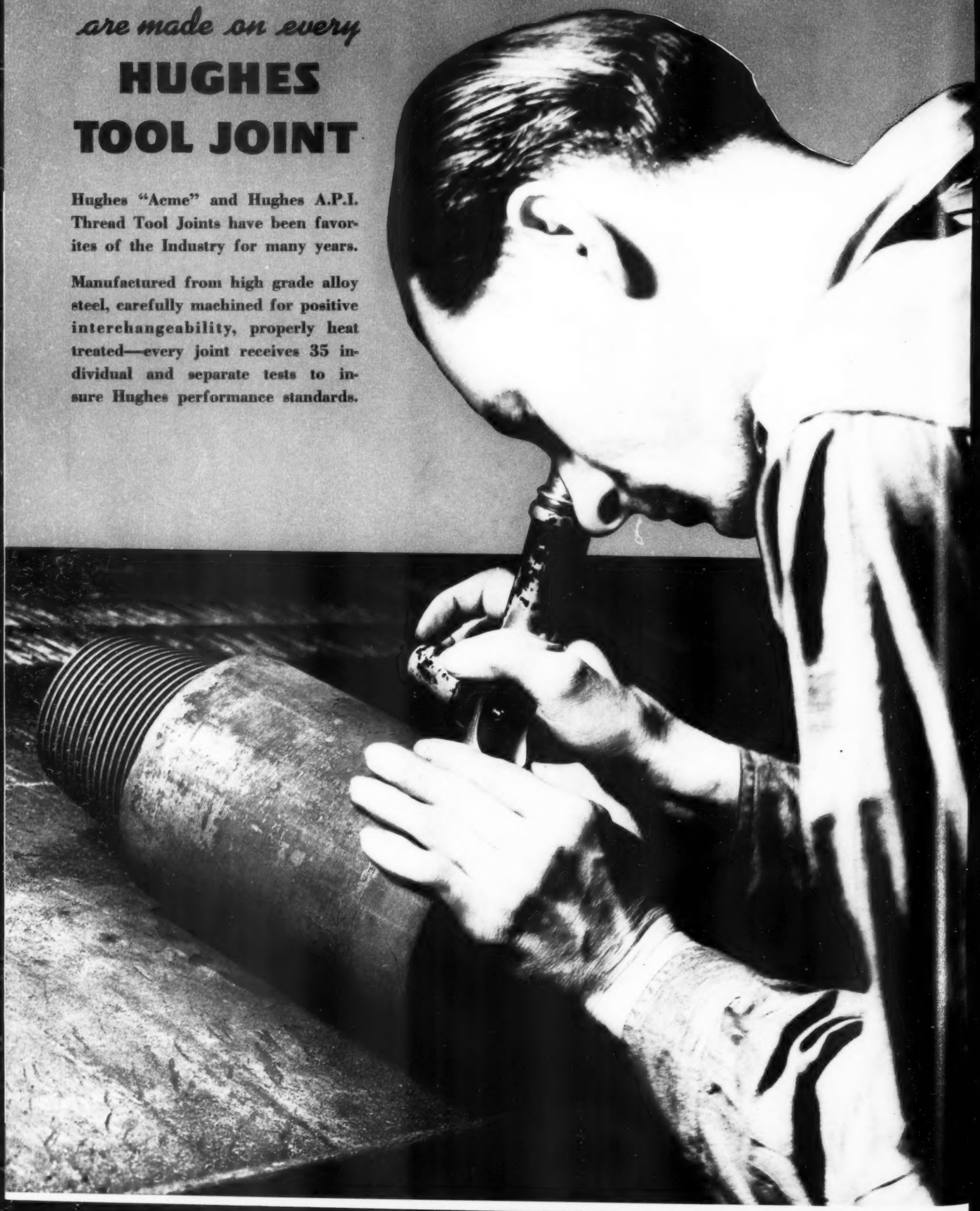

ficient hot water for wash room purposes. This is the only use made of the heat in the exhaust. . . .

In order to work satisfactorily in conjunction with a diesel engine, the waste heat boiler, utilizing the exhaust gas as a source of heat, should have the following characteristics:

1. A good heat transfer rate at the low temperatures found in diesel engine exhausts.
2. Resistance to corrosion from moisture and dilute acids.
3. Should be readily cleaned of carbon deposits and scale formations.
4. Capable of operating dry.
5. Good exhaust muffling characteristics.
6. The boiler should be gas tight.
7. Independent oil firing should be possible.
8. Minimum increase of exhaust back pressure.
9. Construction requiring a minimum amount of attention and maintenance.
10. Minimum of boiler accessories.
11. Low first cost.

While the foregoing requirements for waste heat boilers specifically set forth resistance to corrosion, the Diesel Engine Manufacturers Association in their "Standard Practices" strongly recommend that exhaust gas temperatures be kept above the dewpoint in order to minimize corrosion difficulties.

Waste heat boilers on the market at the present time can be classified in the same general manner as conventional boilers, that is:

1. Fire tube type.
2. Water tube type.

In addition, the Clarkson or "thimble tube" boiler falls into neither of these classifications. This type of boiler has already been presented to the society and the writer desires only to add the following test data when using a No. 8 Clarkson boiler with a 750-hp. 4-cycle, solid injection engine.

TABLE 5—SUMMARY WASTE HEAT BOILER TEST—CUSHING, OKLA.

Type Engine 4-Cycle—17½"x25" Cylinder—225 r.p.m.
Solid Injection

Engine load—	1/2	3/4	4/4
Horsepower output	375	562.5	750
Pounds fuel per hp. hr. (19,270 B.t.u./lb.)	0.400	0.353	0.349
B.t.u. input to engine per hp. hr.	7,700	6,800	6,720
Exhaust tem. off engine, °	395	470	640
Lbs. steam produced per hr.	23	220	226
Lbs. steam produced per hp. hr.	0.061	0.392	0.302
Steam pressure (lbs./sq. in. gauge)	2	4	7.8
Feed water temp. at boiler inlet, °	98	93	92
B.t.u. added per lb. steam	1,089	1,096	1,099
B.t.u. recovered per hp. hr.	115	430	332

The foregoing test data in Table 5 is not complete in that temperatures of the exhaust gas entering and leaving the boiler are not given. Peculiarly these data show a greater heat recovery at three-quarters load than at full load, although the exhaust gas was 170° F. hotter at full load.

In order to approximate the quantity of heat recoverable from the exhaust of a diesel engine Bradford and Clarkson[1] developed the formula:

$$H = \frac{(B.\ hp.)\ (C)\ (D)}{4}$$

Where H = Total heat recovered in B.t.u.
B. hp. = Engine brake horsepower.
C = 12 for 4-cycle engines.
20 for 2-cycle engines.
D = Temp. drop of gases.

When this formula is applied to the test data in Table 5, gas temperature drops through the boiler appear to be somewhat erratic. This is probably due to the fact that the B.t.u. recovery at three-quarters load was greater than at full load.

In order to approximate the probable heat recovery Figure 7 has been prepared by the writer from data at his disposal and is not based upon the Bradford-Clarkson formula. This chart developed for solid injection engines permits a rapid check of the characteristics of exhaust gas for heating purposes. Starting with the rates engine horsepower the following items can be obtained in succession:

1. Quantity of exhaust gas per hour (which remains constant for all loads).
2. Total heat in the exhaust above 60° F., knowing the exhaust gas temperature.
3. Total heat economically recoverable in B.t.u.
4. Total quantity of hot water or steam produced with inlet water temperature of 60° F.

The example shown on the chart (Figure 7) by means of the dotted lines and arrows is a 750-hp., 4-cycle engine, considered to have an exhaust gas temperature at full load of 700° F. The chart shows that approximately 8,000 pounds of exhaust gas are available per hour carrying approximately 1,400,000 B.t.u. of heat above 60° F. The series of solid lines in the lower right-hand portion of this chart are to be used for determining the quantity of heat economically recoverable in hot water, while the dashed lines are to be used for determining the quantity of heat economically recoverable in the form of steam at 5 pounds gauge pressure. The temperature values carried by these lines correspond to the exhaust temperature under consideration; in this example 700° F. Thus with a total of 1,400,000 B.t.u. in the engine exhaust, 650,000 B.t.u. can be recovered in steam at 5 pounds gauge pressure or 700,000 B.t.u. can be recovered in the form of hot water. Following the dotted lines through the lower left-hand chart, it is seen that approximately 600 pounds of steam at 5 pounds gauge pressure or 7,000 pounds of hot water at 160° F. can be produced.

The Foster Wheeler Corp. has developed the data in Table 6 showing the steaming capacities

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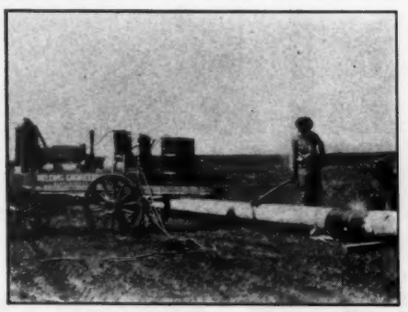

1928

1937

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of their waste heat boilers for both 4- and 2-cycle engines, and at different steam pressures. This table shows the economical range of steam production from a diesel engine exhaust.

Increasing the back pressure on a diesel engine exhaust with a consequent reduction of the power output of the engine has long been a worry of the engine designer and operator. Studies which have been made of exhaust back pressures show that an increase of 2.2 pounds or 50 inches of water reduces the engine output approximately 3 per cent, while a back pressure of 0.5 pound or 13.8 inches of water results in a decrease of less than 1 per cent in engine capacity. Some waste heat boiler designers claim they can effect a reduction in exhaust back pressure by the use of a waste heat boiler. On the other hand, others contend that a draft loss of about 3 inches of water is necessary through the boiler in order that the exhaust gas will have sufficient velocity to provide reasonable heat transfer coefficients.

Installation records of 4-cycle engines equipped with waste heat boilers show that a back pressure of from 3 to 4 inches through the boiler does not apparently affect engine economy or performance. While there is considerable difference of opinion as to the amount of back pressure a 2-cycle engine will permit, waste heat boilers imposing as much as 3½ inches back pressure on this type engine apparently do not affect the engine operation.

Since waste heat boilers normally operate at relatively low steam pressures, the only boiler auxiliaries necessary are:

Sight gauge glass.
Safety valves.
Feed inlet valve, preferably automatic.
Boiler blow-off connection.
Indicating steam pressure gauge.
Gas pressure indicator to engine back pressure.

Where several engines exhaust to a common boiler, suitable gas dampers should be provided between the engine exhaust and the exhaust manifold to the boiler.

In addition to the waste heat boilers, there is available today waste heat water heaters where it is desired to obtain hot water from the waste heat in the exhaust rather than steam.

Briefly this paper points out that:

1. Approximately two-thirds of the heat energy in diesel engine fuel is normally wasted in producing mechanical energy.
2. Approximately 50 per cent of the heat energy in the fuel has possibilities for reclaiming.
3. Hotter exhaust gas temperatures are obtained from 4-cycle than from 2-cycle engines and consequently more steam can be produced from the exhaust of a 4-cycle engine.
4. Several methods are in use for reclaiming waste heat from diesel engines.
5. The heat reclaiming method used will depend upon the purpose for which the waste heat is intended.

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Refinery Meeting Program for Houston Oil Show

Following a two-day meeting on refining measurement and control, a conference on refinery engineering will be conducted at the Oil-World Exposition in Houston, Tex., from October 11 to 16.

Friday morning, 9:30 to 12: "Thermal Polymerization and Its Utilization by Refineries," by P. C. Keith and J. S. Carey, M. W: Kellogg Co.; "Manufacture of Organic Chemicals From Petroleum and Natural Gas by Polymerization," by Dr. M. C. Cooke, Alco Products, Inc., and Dr. C. R. Wagner, Pure Oil Co.; "Catalytic Polymerization and Its Application in Refining," by Dr. Gustav Egloff, Universal Oil Products Co.; "Combination Selective Cracking," by Dr. E. R. Smoley, Lummus Co.

Friday afternoon, 1:30 to 5: "Alloy Tubes for Modern Refining Processes," by Dr. H. D. Newell, chief metallurgist, Babcock & Wilcox Tube Co.; "Metallurgy in Petroleum Refining Equipment," by E. S. Dixon, metallurgist, Texas Co.; "Gasoline Treating and Sweetening Processes," by Dr. C. W. Rippie, Solvay Sales Co.; "Extraction of Salts From Refinery Stocks by the Electrical Process," by T. N. St. Hill, president, Petroleum Rectifying Co.

The conference is being arranged and will be conducted by the refinery committee which consists of: W. H. Curtin, W. H. Curtin & Co., chairman; Ed G. Lenzner, general manager, Oil-World Exposition, Inc., assistant chairman; O. E. Berg, Babcock & Wilcox Tube Co.; M. N. Dannenbaum. M. N. Dannenbaum Co.; R. L. Mallory, Brown Instrument Co.; Joe Miller, Humble Oil & Refining Co.; Joe Peddle, Maintenance Engineering Corp.; and George Reid, editor, Refiner.

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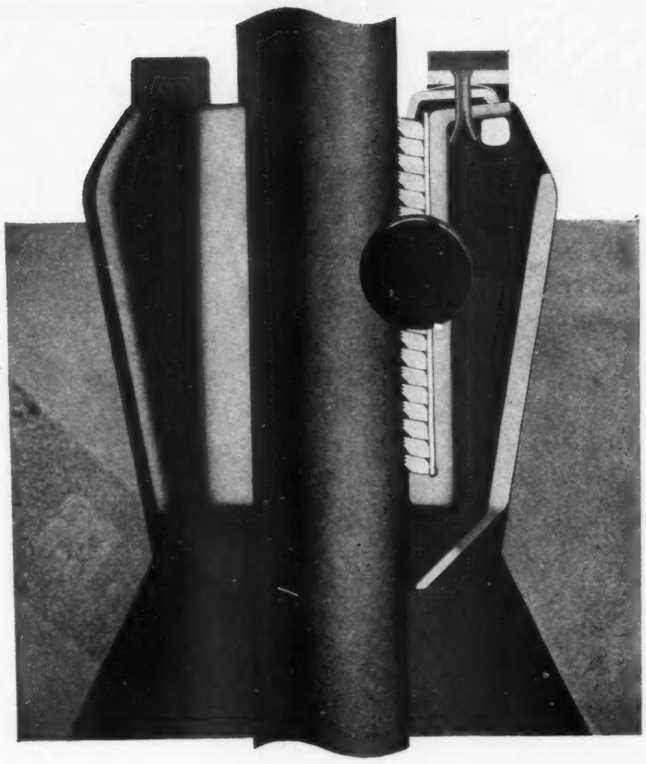

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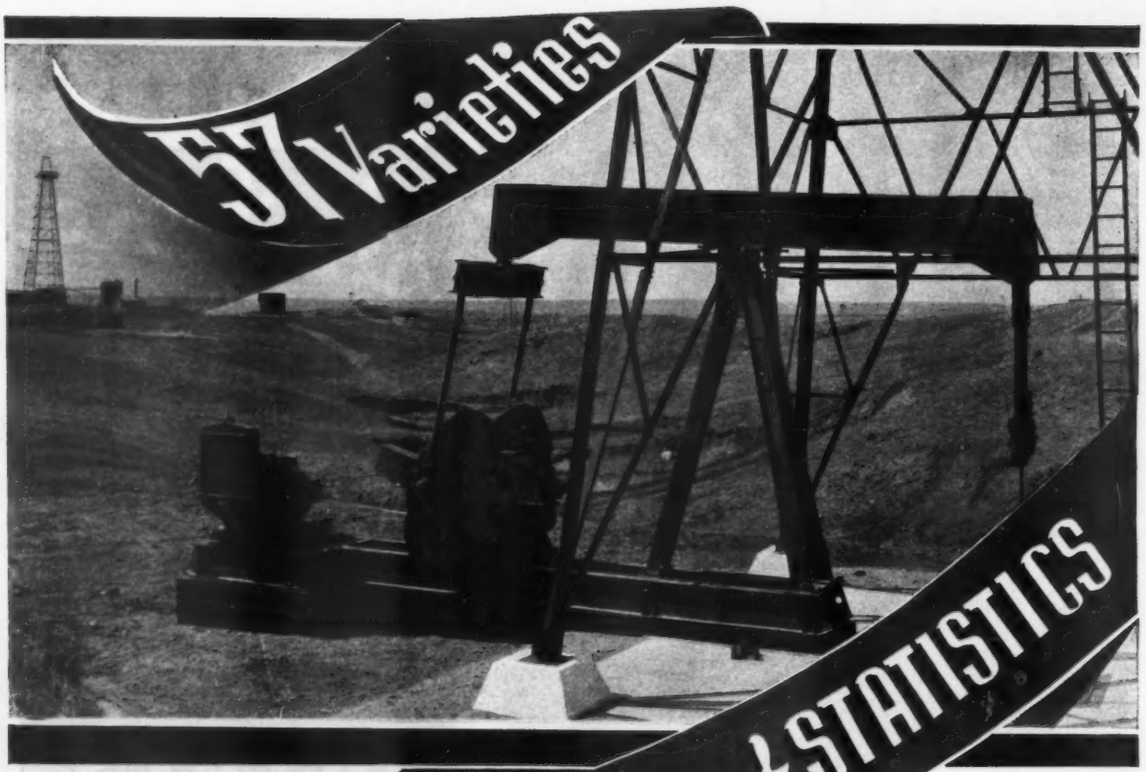

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Electric Welded Casing Strings Increase in Gulf Coast Area

By M. P. HARE
Kane Boiler Works, Inc.

Welding as a method of joining casing as it is run in the well has been of interest to oil company executives, engineers and field men for a number of years. In fact the joining of pipe by welding had solved a number of difficulties for them in the laying of cross-country pipe lines and in welding high pressure piping in their refineries.

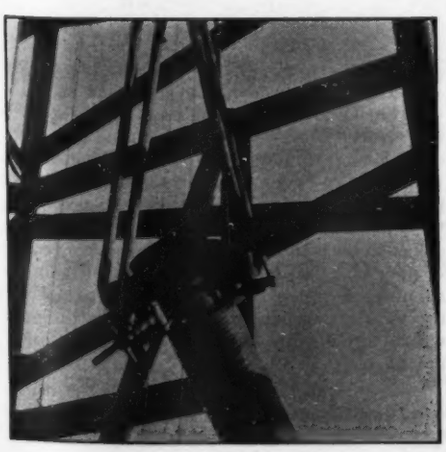
Even with the knowledge of the successful results from welding in these fields, however, it has only been comparatively recent that substantial progress has been made in the Gulf Coast area in the field welding of casing and especially of small diameter casing such as is used in oil and protective strings. This has been due principally to the fact that a number of factors had to be considered and overcome before the oil companies could weld their casing in the field with confidence.

Completed weld of joint of 24-inch casing recently run in a Gulf Coast

Here are some of the factors that were considered essential, and some of the objectives to be reached, before the field welding of the joints in casing could be successful and practical:

1. The joint must be gas tight.
2. The efficiency of the joint should be as near that of the parent metal as possible.
3. The pipe must be safe to handle.
4. Running time should compare with that of threaded and coupled pipe.
5. To be acceptable the process should be economical to use.

The interest of the Kane Boiler Works, Inc., in the field welding of casing started back in 1921. The company was manufacturers of large-diameter pit casing for water wells and had to join this casing in the field. Threaded and coupled joints were impractical and costly and the method of joining the pipe at that time was by riveting. A man would be lowered down inside the pipe in a boson's chair to buck the rivets. Obviously this was a very dangerous and unsatisfactory practice. To improve the practice the company turned to welding, as it had been electric welding in its plant since 1916.



Picking up joint of 16-inch casing for welding

At that time only bare welding rods were available and welding was not only slow, but the welds were not all to be desired, possessing practically no ductility and being susceptible to corrosion. The method, however, was an improvement over the former methods and work was continued along this line until the development of shielded-arc electrodes. Shielded-arc electrodes permitted the making of sound homogeneous welds with physical properties equal to the parent metals being welded and with corrosion resisting qualities even better than most steels. Also welds could be made much faster than with the older rods. At the same time more attention was paid to the production of steels with better welding qualities, elements which do not affect the quality of steel for other purposes proving to be a detriment to welding.

After these advances the field welding of casing progressed much faster. Large diameter casing suitable for conductor pipe and surface pipe, all of it with slip joints for welding, was manufactured in the plant. A machine was developed and built capable of pulling to destruction whole joints of pipe in order to develop information on the best types of joints and welding procedures. After suitable procedures and joints were developed and proven in the plant, they were taken to the field for proving under actual field conditions. Hundreds of strings of casing, in the larger diameters, were successfully run and investigations were started as to the possibilities of welding smaller diameters of casing and longer strings.

It was found that there were some serious objections to the then established threaded and coupled casing. Some of the oil companies were rack-testing each joint of casing to test the factory made-up collars before running it and finding, in some cases, very high percentages of leaks. After these leaky joints were rejected and the casing made up on the floor, run leaks were found to be numerous and in high pressure wells caused considerable expense and trouble. It was also found that after a string of threaded and coupled casing was run and cemented that it was fairly common practice to allow the cement to set about 24 hours and to "make up" and rotate the entire string to take up natural stretch of the threads, and to catch leaks as far as possible. This operation naturally consumed some time and was one which would not be necessary when the casing was welded. It was inherent with the conventional threaded and coupled joints also, that part of the stock is lost by threading which reduces the joint efficiency to less than the full strength of the casing.

Research was therefore continued to establish the proper procedures, methods and joints, which would make the welding process available on the smaller diameter casings. The objectives mentioned above were constantly borne in mind. As in the case of the larger diameter casing each step was developed in the plant and taken to the field for proof. Space would not permit the details of all the problems encountered and worked out, but it might be of interest to mention one typical one.

One of the probiems which makes the welding of casing different from any other pipe welding is the fact that it is necessary and desirable to put the entire weight of the string already welded on the new weld as soon as possible. It would, of course, be easy to allow the weld to cool naturally until it had reached the proper temperature, but this would help defeat one of the objectives mentioned, that the running time should be comparable to that of the methods then in use. Consequently, it was necessary to work this problem out when the welding of strings were contemplated.

Welding joint of casing on a 7-inch string recently run near Corpus Christi, Tex.

Research found for pipe larger than 9⅝-inch O.D., that by the time the weld was completed, scaled and inspected, and the welders had signaled

for the pipe to be lowered, the weld and the adjacent pipe was sufficiently cooled to allow the weight of the entire string (sometimes well over 100 tons) to be placed on the weld and the pipe to be lowered without damage to the weld, as the temperature was below 500 degrees. However, in welding 5½-inch and 7-inch pipe it was found that the temperature of the weld and the adjacent pipe was too high to permit removing the slips without possible damage. Experiments were then conducted and it was found that water could be applied just above the weld from a semicircular spray for approximately 10 seconds and that the temperature would be lowered to the correct degree without danger of affecting grain structure of the weld.

Welding was done on practically every type of joint available. Strings of plain-end pipe were run, bell-and-spigot joints with the square shoulder and variations of these joints, but the inevitable conclusion reached after hundreds of strings of casing had been run was that the most practical joint, from every standpoint, was the bell-and-spigot joint with the inside of the bell beveled.

After running and observing several strings of plain-end pipe, workers also found there was considerable danger of the pipe slipping out of the tail line or elevators while being raised for stabbing. Also when the pipe was being lowered into the hole, every time the pipe floated there was a tendency for it to jump out of the elevators, and that it could not be spudded for the same reason. From an operation and production standpoint there are these objections to plain-end pipe. If complete fusion is obtained by the welder, there is danger of weld metal protruding inside the pipe.

If complete penetration is not secured the joint efficiency is lowered. As a matter of fact it is quite possible to have both conditions in the same weld, one welder penetrating and one not quite fusing.

In order to cure these objections to plain-end pipe considerable research and experimentation was undertaken. Various adaptions of the plain-end pipe were thoroughly tried; the tongue-and-groove joint, the joint with one end beveled and one end plain to act as a shelf for the metal. Having installed several cross-country pipe lines using a removable copper backing strip with success, this method was tried using various shapes and forms of backing rings. A backing strip of combustible materials was also given a thorough trial.

When the results of all these trials were judged by the standards outlined above they all fell short by one or more points in meeting requirements.

From the standpoint of welding the bevel on the inside of the bell of the pipe aids in the following important matters: Higher heats can be safely employed, thus improving the running time over than possible with the square-shouldered bell joint. Another vital point is that the bevel is the best possible gauge of the correct amount of weld metal being deposited, as the first bead completely fills up the bevel allowing the second bead to be used as a seal bead. The proper filling of the bevel is the best assurance of a leak-proof joint, one of the prime requisites of a casing joint.

It has been found that the only way a comparable efficiency could be obtained, where the square shoulder bell is used, was by the use of not less than four beads of weld metal. One of the beads is a fillet bead, two of them filler beads and one of them a bead around the outside circumference of the bell to act as a dam for the last bead. This requires additional welding time, the sealing of the additional beads and two or more additional coolings of the weld to keep the temperatures down to safe limits. Even when the four or more beads are used, the first bead will not penetrate with as much bonding surface to the spigot of the pipe as where the bevel is used and more highly skilled welders are required. The bevel serves the additional purpose of making the pipe stab better and faster as it tends to slide the spigot of the subsequent joint into the bell.

Table 1 shows some typical running times, taken from recent jobs, which can be used for comparison with running times of threaded and coupled pipe. It will be noted that on surface strings in the larger diameters, two welders were used on each joint, on the later oil strings of 5½-inch and 7-inch casing, three welders were used.

TABLE 1—TYPICAL RUNNING TIMES

Size O.D. (inch)	No. of welders	No. of strings	Amt. run per hour (feet)	Avg. string length (feet)
16	2	50	231	1,560
13⅜	2	75	240	1,606
10¾	2	75	320	1,411
9⅝	2	75	336	1,165
7	3	3	574	6,640
5½	2	3	534	5,560
5½	3	2	651	5,550

Increased speeds could be obtained in various ways, one of them being the use of an extra rathole for double joining and doubling of the welding crews. However, unless unusual conditions exist where running time in excess of normal would justify doubling the expense of the job, it has been found practical to use the single crew in the interests of economy. From the experience gained in the running of over 1,000 strings of casing in the Gulf Coast it is felt that procedures on the runnings of Grades "B" and "C" seamless and electric weld casing have been perfected to the point where any length string of casing is entirely practical.

Research and development work is of course still being carried on. The economical welding of Grade "D" casing is the next major objective. It can be successfully welded now but not in the time limits that have been set.

Producers throughout the Mid Continent find the facilities of the First National Bank and Trust Company at their disposal when legitimate expansion is proposed. Since the finding of oil in the territory it serves, this Bank has been so closely identified with the Oil Industry that it has literally become a part of the business.

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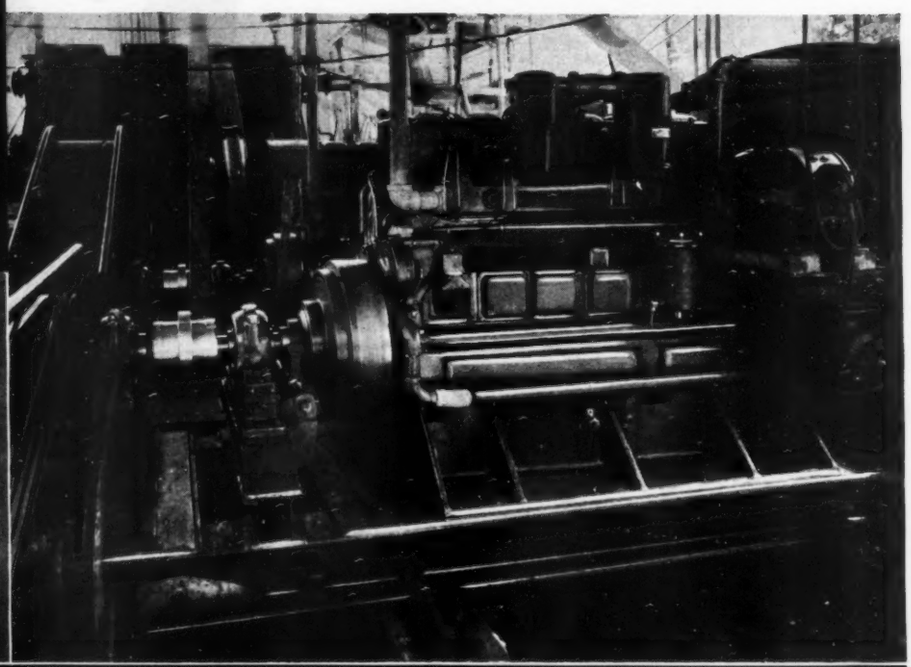
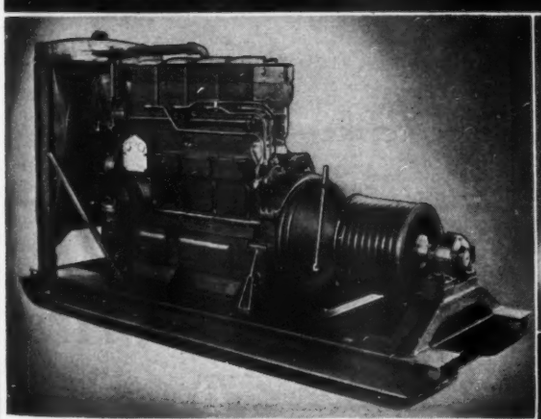
BELOW: A typical Cummins Diesel powered rig. These engines assure the driller the lowest power cost per foot of hole. They are cold starting, smooth running, economical in fuel, lubricating oil and upkeep.

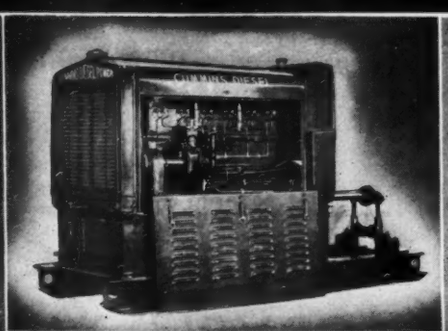


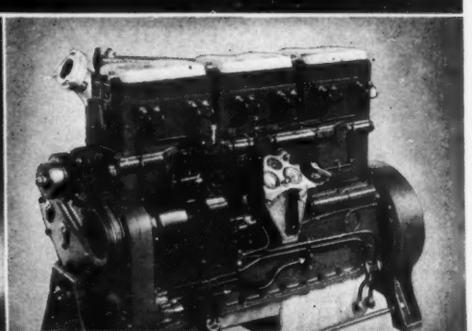
ABOVE Industrial Models K 6, KO 6, and L 6. Model K 6, 150 h. p. Model KO 6, 180 h. p. Model L 6, 200 h. p.

BELOW Industrial Power Unit, Model HP 601. Rated at 85 to 125 h. p.

BELOW Cummins Diesel Industrial Unit, Model HI 6. Rated at 85 to 125 h. p.







ABOVE: Model KO 4. With outboard bearing and pulley for V-belt drive. Built in three sizes: K, KO, and L, from 68 to 167 h. p.

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EXPERIENCE OF MORE THAN A QUARTER OF A CENTURY

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Operations Involved in Use of Friedel and Crafts Reaction

What is the procedure and equipment required for the application of the Friedel and Crafts reaction? Would it be possible for men who are not chemists to conduct the reaction in a small refinery laboratory?—J. A. K.

The Friedel and Crafts reaction, making use of aluminum chloride, was revealed in a British Patent of 1877. It has been important for suggesting a means for the preparation of many organic compounds by replacing the hydrogen of benzene, and related substances, by alkyl groups. Hydrochloric acid is formed as a byproduct. The simplest illustration of the method is the preparation of toluol, $C_6H_5CH_3$.

Anhydrous benzene is placed in a flask fitted for a reflux condenser, about one-third of its weight of anhydrous aluminum chloride added. The proper connections are made and then the gas CH_3Cl passed into the liquid while the mixture is heated on a water-bath. The action is continued until no more HCl is evolved. Then cold water is slowly added to dissolve the aluminum compounds. The liquid is separated, dried with calcium chloride and the mixture purified by fractional distillation.

Another example is the preparation of anthraquinone from phthalic anhydride and benzene. The first product is ortho-benzoyl benzoic acid which is dehydrated to anthraquinone. The phthalic anhydride is mixed with an excess of benzene and added to a quantity of aluminum chloride which is equimolar to the anhydride. This mixture is held at 95° F. in a lead lined steam jacketed kettle for 30 minutes. The temperature is then raised to 176° F. (B.P. benzene) and this temperature maintained until hydrochloric acid is no longer evolved. Steam off the benzene, dry and convert by treating with sulfuric acid (95 to 98 per cent) at 230° to 302° F. for 45 minutes. The anthraquinone is recovered by dilution with water to obtain the crystals to facilitate filtration, removal of acid and washing. Final purification is obtained by sublimation.

Work of this type should be done by competent chemists.

References: Phillips Chem. Rev. 6, 157, 1929; Marek-Hahn, Catalytic Oxidation of Organic Compounds, p.p. 426-427.

Method for Analyzing Crude Oil to Determine Quality

We should like to know what criteria are used in determining the quantity of each of the products shown in a crude oil analysis. We should also be interested in the description of the apparatus and procedure. We find that the analysis of crude oils is a field not well covered in the literature and shall be grateful for any comments on this subject.—R. H. P.

The questions may be reduced to an inquiry as to what is the method employed when analyzing a crude oil, so that the results may be considered for fixing a price or as a guide to refinery operations? The varying quality of the petroleums found in the world make it difficult to arrange a scheme that will be satisfactory for all oils.

In most instances the crude oil is purchased on a gravity basis, the highest prices being paid for the lightest oils. These oils fall in the high gravities, or high numbers, of the A.P.I. hydrometer. Most of these oils contain large quantities of gasoline, but this is not always true. A crude oil of 36 to 40 gravity may be expected to contain 35 or more per cent gasoline, but an oil of similar gravity may contain an exceptional quantity of kerosene and gas oil, with very little, if any, gasoline. This is one reason for making the analysis of an unknown oil. With very few exceptions, the oils containing the larger volumes of gasoline receive the highest prices. In many districts it is the practice to determine the gravity of the oil, inspect for impurities such as sulfur, water and sediment, and to make a distillation test for the gasoline content. This requires that some definition shall be agreed upon for gasoline. The simplest is the gravity of the distillate, designating the percentage, by volume, of gasoline as that averaging say 58, 60 or 62 gravity. A more accurate scheme is to agree that gasoline, as obtained by distillation from a crude oil, shall be all of the distillate which has an endpoint below 400°, 420°, 437°, etc. A similar practice is followed when an analysis is to include kerosene, gas oil and other products.

The gasoline obtained by the dry or steam distillation, this detail should be reported, may not be suitable to be used for motor fuel, but is simply of the proper quality to be purified and blended with other gasolines for the market. Occasionally the gasoline obtained direct from the crude oil by distillation may be used as a motor fuel.

The A.S.T.M. distillation of crude petroleum method provides apparatus and procedure for determining the percentage and distillation of unrefined gasoline, which shall be defined by those interested. A brief description of this method is:

Apparatus. Hempel flask with column packed with chain; condenser; shield and support; burner or heater; measuring graduates and pipettes.

Procedure. The distilling flask, containing 300 ml. of oil, the column filled the chain packing, a thermometer fitted into the cork, is properly connected to the condenser, cooled with cracked ice, and a graduated cylinder placed at the outlet of the condenser tube. Heat is applied to the flask so that the rate of distillation does not exceed 4 to 5 ml. per minute.

The end of the distillation is the temperature observed on the thermometer which has been selected by agreement of those interested. Enough distillate must be obtained, to obtain 100 ml. in the receiver, repeating the distillation as required.

The distillate, thoroughly mixed, is then distilled under standard conditions, for initial boiling point, volume loss and distillation temperatures.

References: A.S.T.M. Standards on Petroleum Products, page 89, 1936.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Sulfur Dioxide

(Sulfurous anhydride)

Use—Selective for purification of kerosene and lubricating oil stocks.

Form—A compressed liquefied gas.

Odor—Very pungent, corrosive, suffocative.

Formula—SO_2.

Specific gravity—1.434.

LIMITATIONS

Melting point	—99°F.
Boiling point	14°F.
Water content, per cent, min. and max.	0.05–0.1

Removing Salt and Water from Crude Oil by Electrical Method

I would like to have a description of the electrical method for removing salt from crude oil. Does such a process require a very high voltage?—T. S.

A recent paper by J. J. Allinson before the American Petroleum Institute gives an outline of the method for electrical dehydrating and desalting crude oil and water mixtures. The description of the method has been arranged from this reference.

Electrical desalting is accomplished in two steps. An emulsion is made with fresh water; then the mixture is electrically demulsified and separated. About 90 per cent of the salt is transferred from the crude oil to the wash water. Emulsification is accomplished by one or more of the following methods: Turbulent flow of oil and water; orifice-plate mixers; centrifugal pumps and back-pressure valves. The oil and water are separated by electrical dehydrators, such as are used for natural crude oil emulsions.

The dehydrator consists of a 180-bbl., 25-pound working pressure, 10-foot by 12-foot tank; 220-volt control equipment; 220- to 16,500-volt transformers mounted on top of the tank, and electrodes within the tank.

The drops of water suspended in the oil phase are subjected to a strong electric field. By electrostatic induction, the drops assume positive and negative poles. There is mutual attraction between unlike poles on adjacent drops, the force being sufficient to cause coalescence, resulting in drops large enough to fall through the oil to the bottom of the tank, from which the water is drained. The electric field between electrodes has an average value of 10,000 volts per inch.

Average throughput per day per unit is 1,500 bbls.; operating temperatures, 130 to 200° F.; electric power load, 2 kw.; amount of wash water, 5 to 20 per cent of the oil. The process is continuous, and is a part of the still equipment on the crude-charge line. The salt content being reduced from approximately 100 grams per barrel to about 4 grams per barrel, and dehydration occurs down to 0.7 per cent or less.

During a typical operation, when the salt content of the crude was being reduced from 107 to 5.6 grams per barrel, laboratory distillation showed that the release of hydrochloric acid at 650° F. was reduced from 63.85 pounds to 0.54 pound per 1,000 bbls. of crude. The result is decreased corrosion of the equipment.

Reference: J. J. Allinson, Electric Dehydrating and Desalting, Seventh Midyear Meeting Amer. Pet. Inst., Colorado Springs, Colo., June 2, 1937.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Use of Superheaters on Drilling Rigs

On this page in the July 15th issue of The Oil and Gas Journal answer was given to a question under the above head. The question was "I am interested in knowing to what extent the use of superheaters in steam lines of drilling rigs has been successful in the United States?" —J. H. F.

In answering this question reference was made to the information on superheaters given in J. E. Brantly's "Rotary Drilling Handbook." One of the manufacturers of boiler equipment takes exception to some of Mr. Brantly's conclusions and points out that over 300 oil field superheater boilers equipped with integral superheaters are now in general service in this country on drilling rigs. There are also a few in foreign countries. In addition to the integral superheater boilers there are probably 45 or 50 separately fired superheaters now in use in oil well drilling service.

With the greater interest in economy of operation and the shortage of water and fuel in many fields, the use of superheated steam is taking on increased momentum. In the past year there has been at least 50 superheater boilers and possibly 20 separately fired superheaters placed in oil field service after a lapse of several years, during which period the industry would not pay the additional price for this equipment because of economic conditions.

There is one interesting use to which superheat can be applied which is not generally understood. Superheat has been promoted because of its increased efficiency on cut-off engines and pumps, and because of the advantage of using it on turbines to cut down corrosion of the blades. It has been found by actual test on many installations that the more inefficient a steam pump or engine is, due to lack of insulation of cylinders and radiation due to slow speed of pump and engines, that there is a large economy in using superheated steam on this type of equipment. To cite field tests made upon slush pumps reference is given to an article by V. Weaver Smith published in the February 13 issue of The Oil and Gas Journal on page 29. This paper is entitled "Progress in Steam Drilling Equipment is Indicated by Higher Efficiencies."

Mr. Brantly indicates he does not consider the superheater suitable for evaporating free moisture that has been pulled over from the boiler or condensed in line. Exception is taken to this statement and numerous tests have indicated that as much as 6 per cent moisture can be carried over with the steam and in checking the superheat obtained in the steam operating under this condition compared to normal operation it was found the reduction in superheat to be in direct proportion to the amount of moisture carried over from the boiler.

Because of this condition it is now common practice to install tangential steam dryers ahead of superheaters in locomotives to overcome reduction in superheat by moisture carried over from the boiler.

Mr. Brantly's critic seems to think he is confused in his discussion of pressures versus quantity of steam. While increased pressure will result in some smaller steam consumption for the same amount of work done, the increased pressure in most cases cannot be substituted for quantity of steam required to perform a certain amount of work.

Mr. Brantly is correct in stating that with superheated steam something is gained in pressure, which might be required on heavy loads at low speed. This higher pressure however, is only due to the lower pressure drop secured in transmitting the steam from boiler to engine.

Repairing Chat Well in Kansas Oil Field

Can you advise me how to plug a well back from the Viola to chat in the Ritz-Canton field, near McPherson, Kans., under the following conditions.

Eight-inch casing set at 2,452 feet.

Five-inch casing set at 3,358 feet and cemented with 30 sacks.

Chat oil found between 2,925 and 2,933 feet.

Chat water found between 2,933 and 2,958 feet.

The cement probably did not protect the chat pay since 30 sacks will only fill about 240 feet in the annular space outside of the 5-inch casing. As the water-bearing formation is not cemented it is not possible to gun perforate the 5-inch casing opposite the chat oil horizon without also allowing the water to escape into the casing. I will appreciate any suggestions you have to make on how to plug back under these conditions. —H. G.

There are at least two ways you can repair your well in the Ritz-Canton field, Kansas, and either should give satisfactory results if properly done and the final decision may be determined by cost about which we cannot advise you.

The first method would be to check the 5-inch string for the exact position of the top of the cement behind the pipe and then go in with cable tools and rip it near the top of the cement and pull this string out of the hole, or at least pull it up to a point just above 2,925 feet and recement it. It will probably be best to pull the entire string of 5-inch casing and rerun so that you will know you have a good joint of casing at the bottom.

After this string has been reset at about 2,925 feet the hole can be filled either all the way up from bottom, 3,358 feet, or it can be bridged at some point up the hole and then the cement plug run above the bridge high enough to shut off the water, or to a point about 2,933 feet from the surface.

The other method would be to have the casing gun perforated at some point below 2,958 feet or the base of the water strata and also gun perforated at about 2,933 feet from the surface. A packer is then run in the casing and set at some point below the lower set of perforations. A string of tubing is then run to terminate a short distance above this packer and this tubing is provided with another packer which is set at some point above the bottom packer and the lower set of gun perforations.

With everything in readiness cement is pumped through the string of tubing into the space in the casing between the two packers and will find exit through the gun perforations in this space to the annular space between the outside of the casing and the walls of the hole.

This cement in the annular space will tend to rise behind the casing until it reaches the upper set of gun perforated holes at about 2,933 feet when it will escape back into the casing.

While the cement is being pumped through the tubing the pressure can be observed and it will be noted to drop appreciably just as soon as the cement finds reentry into the inside of the casing through the upper set of gun perforated holes. As this cement is then back of the pipe up to a point just about oil and water contact it should shut off the flow of water.

After the cement job is completed a section of the 5-inch casing should be gun perforated opposite the oil pay. To facilitate handling this oil the packer originally set below the lower group of gun perforated holes should be moved up to a position below the new set of holes through which the oil will enter the casing. This entire operation is known as a "squeeze job" and has been successfully done in many wells in numerous fields.

Market for Fuller's Earth

A friend of mine is interested in a deposit of fuller's earth located about 4 miles from a railroad. He desires to learn something about the probable market value and the principal uses for this material. Any information you can give us concerning the fuller's earth market will be appreciated.—T. H. H.

The best record of the fuller's earth industry we know about will be found in the latest edition of Minerals Year book published by the United States Government Printing Office, Washington, D. C., for the U. S. Department of the Interior, Bureau of Mines.

Quoting from the 1935 edition of this publication we find that fuller's earth is a mineral substance resembling clay, with physical properties that give it a high capacity for removing basic colors from solution in mineral, vegetable or animal oils. The name does not imply any particular chemical composition but was derived from the use to which the earth was formerly put by fullers to full or scour and cleanse cloth of grease and by furriers to remove grease from fur. For statistical purposes the Bureau of Mines classes as fuller's earth all natural bleaching or filtering claylike materials that have high adsorptive capacity without previous chemical treatment for activation.

More than 99 per cent of the fuller's earth produced in the United States is used to clarify mineral and vegetable oils and animal fats. The total output for 1934 was 220,264 short tons valued at $2,085,081. This material was mined in Alabama, California, Florida, Georgie, Texas with small amounts from Colorado, Illinois, Massachusetts and Nevada.

One of the principal controlling factors in making a deposit of commercial value is location with regard to market. Freight charges represent an appreciable proportion of the cost to the consumer and unless your deposit is so located as to be relatively close to market it is probable it has no commercial value regardless of the quality. You fail to state any details about where the deposit is located so we are not in position to offer any further suggestions. If you can secure a late report upon this industry from the Bureau of Mines, Washington, D. C., you will have a better idea of market value and demand but if cost to move your product to market will be high it would be difficult to sell.

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Dependability plus economy and simplicity are the prime essentials of successful drilling operations.

Fairbanks-Morse horizontal engines have long set the standard for dependable operation in the oil country. The two-cycle design of the 14 x 18 Model 47A0 twin cylinder engines used with the "MHB" rig gives simplicity with the advantage of few moving parts and low maintenance. A specially designed system of scavenging provides unusually high overload capacities and also real fuel economy.

The sturdy Emsco Type "H" Reverse and Friction Clutch affords power transmission with no maintenance worries. It is built into the rig as an integral part and constructed for heavy duty service. By using the Gardner-Denver 7¼ x 14 Power Slush Pump driven by a duplicate engine, many "MHB" users have drilled hole after hole without even being required to make an adjustment. The entire rig is built as a unit which can deliver service unfailingly and without expensive upkeep.

Ask your nearest Continental representative for complete information. A descriptive bulletin is available upon request.

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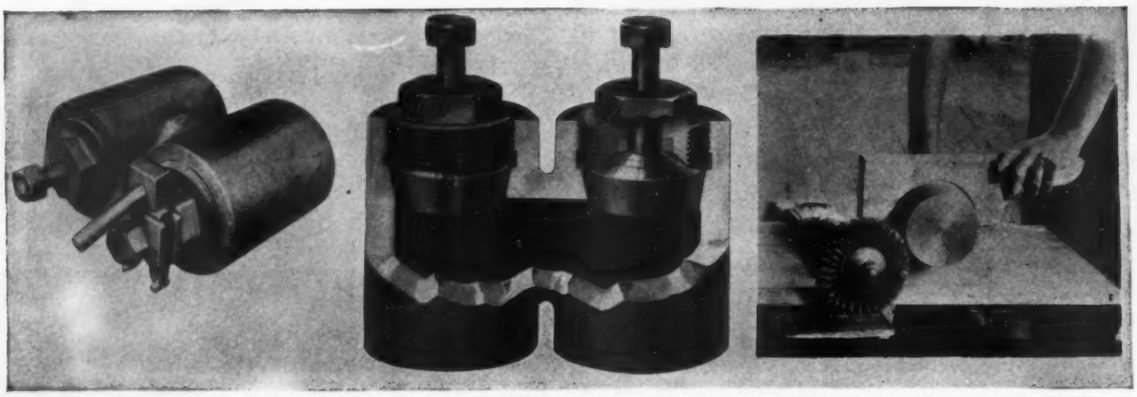

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IN the Kellogg Return Headers each section is a true cylindrical section of uniform thickness and strength. This assures the strongest and simplest header obtainable and overcomes the structural weakness of headers of ordinary design.

The two *forged steel* billets, from which Kellogg Return Headers are formed, are resistance welded on the crossover, and the completed header is heat treated before machining. This insures maximum strength and toughness in *all* parts.

The plugs and set collars of Kellogg Return Headers assure an always leakproof seal.

Kellogg Return Headers withstand successfully high temperatures, pressures and corrosive or erosive liquids and vapors. They assure longer furnace runs, with maximum operating efficiency and minimum time out for cleaning or replacements.

The specially designed Kellogg Forged Steel Plug Puller facilitates rapid plug removal. Easily handled by one man. The most heavily coked or most resistant plug is quickly loosened and removed.

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Crude Oil and Refinery Summary for First Six Months of 1936-1937

The daily average production of crude petroleum in June, 1937, was 3,527,100 bbls., which was about 50,000 bbls. under the record established in May, according to the report of the Bureau of Mines.

Production in most of the major producing states declined in June, California and Louisiana being the most notable exceptions. Daily average production in California was 663,800 bbls., the highest since January, 1936, while Louisiana's average of 257,100 bbls. was a new record for that state. Texas and Oklahoma showed the largest declines, that for the former being fairly well distributed outside of East Texas, that for Oklahoma being mainly in the Oklahoma City field. The daily average production in the East Texas field remained unchanged from May at 468,200 bbls. daily. It is noteworthy that the number of oil wells completed in that field rose from 158 in May to 178 in June and the average daily initial rose from 1,100 bbls. to 1,170 bbls. The national total for oil wells completed declined from 2,192 in May to 2,178, but the latter was nearly 30 per cent above completions for a year ago. The chief item of interest in the minor states was the continued rise of development and production in Illinois, for which some predict a return of the boom days of 30 years ago.

Supply and Demand—Crude Oil (Bbls.)

Six months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Indicated domestic demand‡	Exports	Stocks refinable crude June 30
1937	631,903,000	611,299,000	*20,604,000	*3.4	620,166,000	11,737,000	582,854,000	28,445,000	308,788,000
Daily average	3,491,000	3,377,000	*114,000	....	3,426,000	65,000	3,220,000	157,000	.....
1936	551,413,000	555,222,000	3,809,000	.7	535,911,000	15,502,000	532,601,000	22,621,000	311,046,000
Daily average	3,046,000	3,067,000	21,000	....	2,961,000	85,000	2,943,000	124,000	.....
Increase, 1937	80,490,000	56,077,000	.....	....	84,255,000	†3,765,000	50,253,000	5,824,000	†2,258,000
	14.6%	10.1%	.....	....	15.7%	†24.3%	9.4%	25.7%	†.7%

Supply and Demand—Refinery Products—Motor Fuels (Bbls.)

Six months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks June 30§
1937	274,527,000	260,979,000	*13,548,000	*5.2	274,527,000	.....	243,730,000	17,249,000	81,310,000
Daily average	1,517,000	1,442,000	*75,000	....	1,517,000	.....	1,347,000	95,000	.....
1936	246,344,000	234,341,000	*12,003,000	*5.1	246,344,000	.....	220,961,000	13,380,000	73,206,000
Daily average	1,361,000	1,295,000	*66,000	....	1,361,000	.....	1,221,000	74,000	.....
Increase, 1937	28,183,000	26,638,000	.....	....	28,183,000	.....	22,771,000	3,869,000	8,104,000
	11.4%	11.4%	.....	....	11.4%	.....	10.3%	28.8%	11.1%

Kerosene

Six months—									
1937	31,313,000	30,165,000	*1,148,000	*3.8	31,313,000	.....	26,183,000	3,982,000	6,781,000
1936	27,902,000	28,522,000	620,000	2.2	27,902,000	.....	25,476,000	3,046,000	7,296,000
Increase, 1937	3,411,000	1,643,000	.....	....	3,411,000	.....	707,000	936,000	†515,000
	12.2%	5.7%	.....	....	12.2%	.....	2.8%	30.7%	†7.1%

Gas Oil and Fuel Oil¶

Six months—									
1937	238,532,000	243,669,000	5,137,000	2.1	225,961,000	12,571,000	222,769,000	20,900,000	101,881,000
1936	218,793,000	218,079,000	*714,000	*.3	210,039,000	8,754,000	201,001,000	17,078,000	104,698,000
Increase, 1937	19,739,000	25,590,000	.....	....	15,922,000	3,817,000	21,768,000	3,822,000	†2,817,000
	9.0%	11.7%	.....	....	7.6%	43.6%	10.8%	22.4%	†2.7%

Gas Oil and Distillate Fuels

Six months—									
1937	68,976,000	71,038,000	2,062,000	2.9	68,450,000	526,000	57,500,000	13,538,000	20,657,000
1936	61,263,000	58,718,000	*2,545,000	*4.3	61,263,000	.....	48,904,000	9,814,000	22,475,000
Increase, 1937	7,713,000	12,320,000	.....	....	7,187,000	526,000	8,596,000	3,724,000	†1,818,000
	12.1%	21.0%	.....	....	11.7%	.....	17.6%	37.9%	†8.1%

Residual Fuel Oils

Six months—									
1937	169,556,000	172,631,000	3,075,000	1.8	157,511,000	12,045,000	165,269,000	7,362,000	81,224,000
1936	157,530,000	159,361,000	1,831,000	1.2	148,776,000	8,754,000	152,097,000	7,264,000	82,223,000
Increase, 1937	12,026,000	13,270,000	.....	....	8,735,000	3,291,000	13,172,000	98,000	†999,000
	7.6%	8.6%	.....	....	5.9%	37.6%	8.7%	1.3%	†1.2%

Lubricating Oils

Six months—									
1937	17,417,000	17,453,000	36,000	2	17,417,000	.....	12,000,000	5,453,000	6,447,000
1936	14,992,000	15,220,000	228,000	1.5	14,992,000	.....	10,973,000	4,247,000	6,799,000
Increase, 1937	2,425,000	2,233,000	.....	....	2,425,000	.....	1,027,000	1,206,000	†352,000
	16.2%	14.7%	.....	....	16.2%	.....	9.4%	28.4%	†5.2%

Petroleum Wax (Lbs.)

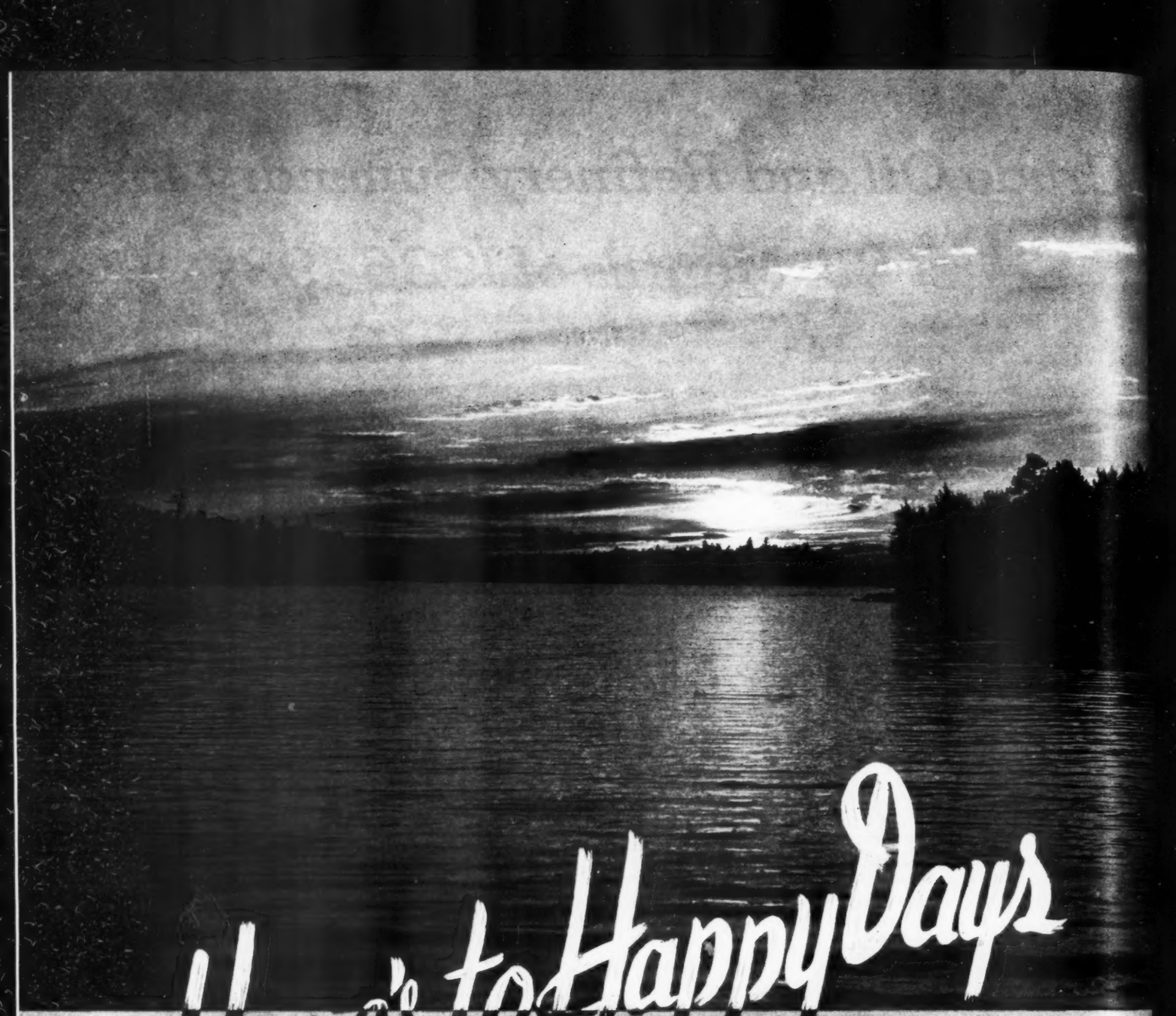
Six months—									
1937	271,094,000	277,967,000	6,873,000	2.5	257,320,000	13,774,000	150,052,000	127,915,000	103,761,000
1936	249,044,000	246,357,000	*2,687,000	1.1	241,920,000	7,124,000	155,457,000	90,900,000	117,362,000
Increase, 1937	22,050,000	31,610,000	.....	....	15,400,000	6,650,000	†5,405,000	37,015,000	†13,601,000
	8.9%	12.8%	.....	....	6.4%	93.3%	†3.5%	40.7%	†11.6%

*Excess supply. †Decrease. ‡Crude oil only. §Includes finished, unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

Crude Oil Run to Stills and Total All Oils (Bbls)

Six months—	Total imports§	Total exports§	Total crude to stills	Per cent yield gasoline‡	Nat. gasoline production	Total supply all oils*	Total demand all oils*	Stocks all oils June 30
1937	27,078,000	77,068,000	566,911,000	46.9	22,973,000	671,668,000	639,629,000	550,685,000
Daily average	149,000	426,000	3,132,000	....	127,000	3,711,000	3,534,000	3,042,000
1936	27,208,000	61,595,000	516,770,000	46.2	19,984,000	584,291,000	575,695,000	550,296,000
Daily average	150,000	340,000	2,855,000	....	110,000	3,228,000	3,181,000	3,040,000
Increase, 1937	†130,000	15,473,000	50,141,000	....	2,989,000	87,377,000	63,934,000	389,000
	†.5%	25.1%	9.7%	....	15.0%	15%	11.1%	.1%

*Total all oils includes crude and refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.



Here's to Happy Days

● August is vacation time—and the one purpose of this message is to wish for you and yours the happiest of holidays, free from all business cares. May you return to work mentally refreshed, physically fit and rarin' to go!

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FIELD OPERATIONS

Summarizing the Week's Developments

A new producing area was uncovered in Pratt County, Kansas, northeast of the town of Pratt. A wildcat east of the Hauschild pool, Rice County, found production. A Stafford County discovery well flowed 385 bbls. of oil in three hours. A new area was opened in northeastern Ellis County, and the Bemis pool of that county was extended one-fourth mile eastward. The Trapp pool of Russell County was extended 1 mile west, and was given another extension 1½ miles south in Barton County.

OKLAHOMA

A wildcat west of Sasakwa, southern Seminole County, Oklahoma, opened a new gas area. Testing was underway at key wildcats in Grant, Stephens and Tillman counties, at tests in which oil showings were found. The second producer in the new Doyle area, northern Stephens County, was completed as an oil well and the third producer was showing as a gasser.

TEXAS

In West Texas, a wildcat 6 miles west of the Bennett pool, Yoakum County, gave indications that it was an oil well in a deeper formation than any other well within many miles, and another Yoakum County test was showing oil saturation in cores. The Wasson pool in Gaines County has its second good well, and Wasson outposts, northwest and southwest, were swabbing oil. A six-year-old well in the North Cowden pool in Ector County was deepened 18 feet, to 4,319 feet, and after a big shot of nitroglycerine, flowed 2,301 bbls. in 24 hours. In Coastal Texas a new well 1¾ miles south of the Friendswood pool in Harris County proves the importance of that recent discovery. In Southwest Texas drilling wells in Brooks, Nueces and Starr counties were showing oil in heretofore undiscovered horizons and a wildcat in San Patricio cored an oil sand at 5,976-86 feet. A new pay at 4,513-30 feet was opened in the Alta Vista pool in Brooks County and the well produced 280 bbls. per day on a quarter-inch choke.

TEX-LA-ARK

In the extreme southern part of Louisiana, in Lafourche Parish, a new pool was opened producing 32-gravity oil. In northern Louisiana the Cotton Valley pool in Webster Parish and the Lisbon pool in Claiborne Parish were extended. Three new wells were completed in the Miller County, Arkansas, side of the Rodessa field. The Schuler field in Union County was given five new wells and a dry hole.

CALIFORNIA

The Long Beach portion of the Wilmington field in California was expected to commence its drilling campaign before the end of August. It is possible that 400 wells will be drilled before development work is concluded. This would mean about $24,000,000 spent in drilling operations.

MICHIGAN

A 500-bbl. well in Allegan County, Michigan, drew attention from the Buckeye field in that state.

ILLINOIS

More good wells were completed in Marion, Clay and Richland counties, Illinois, but what may be a dry hole is shut down on the prolific Weiler farm in Clay County.

Completions in All Fields

(Week Ending August 21, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
N. Y.-Pa.-W. Va.	81	20	5	106	2,691	2,085
Ohio	7	5	5	17	734	471
Indiana	0	0	0	0	64	121
Illinois	10	0	1	11	76	24
Michigan	11	0	0	11	519	452
Kentucky	10	1	7	17	336	160
Kansas	28	0	8	36	1,616	1,039
Oklahoma	40	2	20	62	1,822	1,701
Texas:						
North Central Texas	29	1	20	50	1,810	1,716
West Texas	46	1	7	54	1,736	940
Texas Panhandle	14	5	0	19	467	429
East Central Texas	11	0	0	11	444	198
East Texas	40	0	0	40	1,433	1,771
East Texas border	3	1	0	4	244	50
Gulf Coast Texas	29	0	5	34	971	769
Southwest Texas	40	1	20	61	2,096	1,759
Total Texas	212	9	52	273	9,201	7,632
North Louisiana	6	1	2	9	399	435
Gulf Coast Louisiana	9	0	6	15	300	296
Total Louisiana	15	1	8	24	699	731
Arkansas	10	0	4	14	97	66
Montana	0	2	1	3	131	144
Wyoming	0	0	0	0	68	66
Colorado	0	1	0	1	9	17
New Mexico	14	2	0	16	484	362
Utah	0	0	0	0	2	5
California	24	1	18	43	979	723
Total United States	462	44	129	635	19,528	15,799
Total previous week	440	55	119	614		
Difference	22	11	10	21		

Outstanding Fields—Highlights

(Week Ending August 21, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
McCampbell	3	15	3	260	42	3,306
North Sweden	1	14	4	450	36	3,549
Saxet	4	26	4	560	522	40,850
Amelia	3	10	15	1,142	74	4,930
Hastings	4	22	6	3,250	286	15,534
Winkler County	3	35	13	8,537	1,377	44,400
Ector County	8	48	4	2,334	562	23,200
East Texas	45	114	40	1,768	23,345	477,398
Talco	3	40	10	3,372	433	35,100
OKLAHOMA						
Oklahoma City	1	5	1	299	1,133	162,200
Fitts	5	34	9	4,836	850	97,550
Billings	1	7	1	1,291	43	7,575
KANSAS						
Ellis County	12	50	2	2,850	168	6,265
Reno County	2	15	1	300	468	18,555
Russell County	19	51	10	7,365	814	33,295
Rice County	3	45	7	5,400	950	42,845
NEW MEXICO						
Lea County	32	102	14	3,552	2,274	112,080
TEX-LA-ARK						
Rodessa, La.-Ark.	9	26	4	2,351	406	52,696
Rodessa, Tex.	5	19	3	850	334	38,575
Lisbon, La.	6	28	2	1,367	70	12,555
Jennings, La.	2	11	1	360	63	8,312
MICHIGAN						
Buckeye	11	72	6	3,200	194	17,188

Eastern Field Report

By STAFF CORRESPONDENT

FAIR SIZED ORISKANY SAND GASSERS IN WEST VIRGINIA

PITTSBURGH, Pa., Aug. 23.—Nothing of particular interest developed in the lower Eastern fields during the past week. Completions consisted of 34 operations of which 4 were dry, 19 gas wells and 11 producers with an initial production of 245 bbls. a day. Three fair gas wells were completed in the Oriskany pool in West Virginia, and the new production was mostly in Southeast Ohio.

SOUTHEAST OHIO

In Columbiana County, the Natural Gas Co. of West Virginia reached the top of the Corniferous lime at 4,200 feet in the deep test on the J. C. Workman farm a half mile west of the Margaret Jenkins gas well in section 28, Madison Township.

In Knox County, the Preston Oil Co., on the R. L. Jones farm in section 10, Jackson Township, completed a Clinton sand well at a total depth of 3,136 feet. It produced 58 bbls. the first day after shot. Top of the sand was at 3,081 feet.

In Licking County, I. I. Hazlett test on the Jacob Kreager farm, section 18, Hopewell Township, was completed in Clinton sand at 3,080 feet. It produced 20 bbls. by swabbing the first day after shot. In section 17, same township, Hazlett & Larrick drilled a dry hole on the J. L. Iden heirs through the Clinton sand to 4,130 feet.

In the shallow sands of Licking County, Park National Bank of Newark No. 10 account completed No. 2 Arlie M. and George A. Eshelman in section 2, Newton Township, in Berea sand at 688 feet. It will make a 2-bbl. pumper. In section 10, Licking Township, McClay Brothers test on the J. H. Orr farm, 6 feet in the lime at 2,311 feet, is a gas well good for 350,000 feet a day.

In Medina County, Oko Oil & Gas Co. completed No. 51 Jesse McVicker, Lot 2, Chatham Township, in Berea grit at 460 feet. It produced 2 bbls. the first day after shot. On Tract 6, Lot 20, same township, E. R. Edson & Son Co. No. 47 M. A. and Eva Franks farm was a dry hole through the Berea grit to 497 feet.

In Monroe County, N. T. Stauda and others completed a test on the J. S. Jackson farm in section 16, Center Township, in the Keener sand at 1,448 feet. It produced 3 bbls. the first day after shot.

In Morgan County, in section 13, Marion Township, Speary Oil & Gas Co.'s test on the George Starling farm was completed in Salt sand at 930 feet, a gas well gauging 330,000 feet a day.

In Muskingum County, Edward H. Everett Co. and others completed No. 3 Ella C. Hill in Licking Township in Clinton sand at 2,980 feet. It produced 65 bbls. first day after shot.

In Noble County, C. W. Rich and others on the Susannah Steele farm in section 7, Seneca Township, was completed in Berea grit, depth 1,484 feet. It is a gas well gauging 200,000 feet day, but was void of any oil showing.

In Stark County, Frank Lyons and others completed two fair gas wells in Plain Township. In section 15, about 6¼ miles north of Canton, the test on the Shaub heirs farm was bottomed at 3,850 feet in the Clinton sand and gauges 1,500,000 feet a day. In section 21, about a quarter mile south of the above test, the test on the E. A. Laugenbach farm was bottomed at 3,870 feet, same formation, and it gauges 2,000,000 feet a day, and has also about a barrel of oil a day.

In Washington County, Ray Dewitt and others completed a No. 4 Munn Fisher farm, located about 3 miles east of Barlow, Lot 784, Barlow Township, in the First Cow Run sand at 857 feet. It produced 2 bbls. the first day after shot.

SOUTHWEST PENNSYLVANIA

In Center Township, Greene County, Pennsylvania, South Penn Oil Co. completed No. 11 Samuel Harvey at 3,224 feet. Nineveh Thirty Foot sand was at 3,194-3,222 feet with oil and gas at 3,196, 3,204 and 3,220 feet. It is good for 50 bbls. a day.

In Franklin Township, Greene County, Manufacturers Light & Heat Co. deepened No. 1 C. C. Wood to 3,070 feet. Bayard sand was at 2,944-2,959 feet; Bayard Stray, 2,963-2,967 feet, with gas gauging 54,000 feet a day.

In Center Township, J. B. Orndoff is on top of the Nineveh Thirty Foot sand in the No. 2 Mattie I. Scott and is shut down shooting the break between the Fifty Foot and Thirty Foot sands. After shot it will be cemented and drilled in. The depth is 3,187 feet. Here the Carnegie Natural Gas Co. is drilling at 2,289 feet on the J. H. Orndoff farm. The Manufacturers Light & Heat Co. is down 1,905 feet on the W. L. Fordyce farm. The Union Gasoline & Oil Corp. has reached 1,500 feet on the Mabel Bodley farm.

In Franklin Township, The Waynesburg Home Gas Co. is drilling at 2,337 feet on the Marguerite Grover farm with the Fifty Foot sand topped at 2,333 feet and 50,000 feet of gas at 2,334 feet. In Springhill Township, Nelson M. Richard Co. is down 1,240 feet on the Rossell Sammons farm.

In Richhill Township, the Natural Gas Co. of West Virginia is drilling at 2,505 feet No. 1 O. M. Grinnage. Smith McCracken has skidded the rig to make a new start for the Asa Hughes test. O. I. Dillie is starting to spud the test on the J. M. Phillips farm.

In Washington Township, the Carnegie Natural Gas Co. is drilling at 659 feet on the Sadie Connor farm in the Ruffs Creek area. The Convex Glass Co. is down 1,095 feet on the VanVoorhis farm in Dunkard Township. In Monongahela Township, the Greensboro Gas Co. is drilling at 1,955 feet on the Unlery farm.

Washington County

In Amwell Township, the Union Gasoline & Oil Corp. is drilling the No. 7 A. O. Vankirk with Little Dunkard sand at 1,238 feet and an oil showing at 1,250 feet. The depth is now 1,288 feet. Moore Orrill and others are down 2,745 feet in No. 4 Martha Hazlett. Carnegie Natural Gas Co. has reached 1,768 feet in No. 3 R. M. Carrons. Equitable Gas Co. is down 1,701 feet in No. 3 S. E. Reese. Penn Oil Co. is deepening the John Russell gas well and at 2,210 feet it showed 465,000 feet of gas.

In South Franklin Township, Union Gasoline & Oil Corp. is drilling at 2,455 feet in No. 4 B. F. McClain. Dunn Mar Oil & Gas Co. is drilling at 2,610 feet in No. 3 J. T. Baldwin. Carnegie Natural Gas Co. has reached 2,460 feet in No. 3 M. C. Manon.

In South Strabane Township, Manufacturers Light & Heat Co. is drilling at 510 feet in No. 1 R. O. McKahan. In North Strabane Township, McClelland Brothers are down 1,500 feet on their own property. In Peters Township, the Carnegie Natural Gas Co. is drilling at 1,365 feet on the McMurray farm.

In Nottingham Township, Robinson Brothers are spudding a test on the Frank Anthony farm. In Somerset Township, Victor Behm and others have started drilling the J. D. Amos test.

In South Franklin Township, F. K. Fawcett and others are drilling at 1,820 feet in No. 2 Tuckers Heirs. Bloom and others are on top of the Fifth sand in No. 2 Clyde Hinerman which is being deepened.

Deep Tests

In Westmoreland County, Potter Development Co., William E. Snee and others on the Indiana Savings & Trust Co. lease, Laurel Ridge dome, Fairfield Township, are drilling at 7,638 feet or 60 feet in the Onondaga lime. The gas volume from this formation is about 275,000 feet a day.

In Washington County, the test of Norwood Johnston and others on the James McBurney farm near Hickory in Mount Pleasant Township is shut down for repairs to the walking beam. The tools have not been recovered from the last blowout at 6,414 feet but the line has been recovered.

In Allegheny County, the test of South Penn Oil Co. and others on the Christian Z. Schove farm in Hampton Township is drilling at 3,950 feet. No Bradford sands were found. In Lawrence County, the Carnegie Natural Gas Co. is drilling at 3,500 feet on the W. A. Currie farm in Shenango County. In Mercer County, the Petroleum Development Co. is spudding in the test on the A. S. McCullough farm in Jefferson Township.

WEST VIRGINIA

Three producers were completed in West Virginia during the week. In Hancock County, the R. J. Braden Co. completed No. 15 J. C. Hamilton in Grant district in the Berea sand at 1,085 feet. It is good for 2 bbls. a day.

In Roane County, the South Penn Oil Co. completed No. 14 J. W. Conley in Reedy district in the Berea sand at 2,608 feet. It is showing for 5 bbls. a day.

In Lincoln County, the Sand Creek Gas Co. completed No. 2 Phillip Hager in Harts Creek district in Big lime at 1,507 feet. It is making 20 bbls. a day and is a former gas well.

Gas Wells

In Boone County, the Owens Illinois Glass Co. completed No. 18 Little Coal Land Co. in Washington district at 2,608 feet as a gas well ganging 246,000 feet a day. The Big lime was at 1,855-2,071 feet; Big Injun, 2,071-99 feet; Berea, 2,545-73 feet with the gas at 2,549-55 feet.

In Cabell County, the DeJarnette Gas Co. completed No. 4 J. H. DeJarnette in McComas district as a gas well at 3,306 feet; Brown shale at 2,925-3,274 feet, with 552,000 feet of gas at 3,199-3,210 feet.

In Calhoun County, Hope Natural Gas Co. completed No. 7,771 on the J. M. Bennett farm in Washington district at 1,806 feet as a gas well gauging 1,700,000 feet a day from Maxon sand at 1,800-06 feet. In Sherman district, Clem S. Morris drilled No. 2 Phillip Nichols Heirs to 2,500 feet and it was dry and abandoned.

In Doddridge County, W. D. Gribble completed a 100,000-foot gasser on the S. W. Stuart farm in West Union district at 2,780 feet, the Gordon sand.

In Gilmer County, the Massey & Jarvis Drilling Co.'s test on the Ota K. Wilfong farm in Glenville Independent district is a gasser gauging 1,250,000 feet a day at 1,580 feet. In this district, Louis Whinie, drilling as the Ludwic Oil & Gas Co., completed No. 2 Earl E. Beall at 1,639 feet. Salt sand at 1,074-1,108 feet produced 696,000 feet of gas.

In Kanawha County, Owens Illinois Glass Co. completed No. 3 Siler Coal Co. lease in Washington district at 4,072 feet as a 210,000-foot gas well in Brown shale at 3,013-3,799 feet

In Lincoln County, Huntington Development Co. deepened No. 260 W. E. Madden in Carroll district from 2,297 feet to 3,933 feet and got 31,440 feet of gas per day at 3,830-35 feet. In Sheridan district, Kanawha Gas & Utilities Co. on the Ira Burger farm has a gas well good for 552,000 feet per day at 2,952-3,100 feet.

In Ritchie County, McBurney and others No. 5 M. B. Nutter in Clay district was completed in Injun sand at 2,105 feet. It gauges 324,000 feet a day.

In Tyler County, L. C. White & Son drilled a test on the James W. and M. Dearth farm in Union district through the Injun sand to a depth of 1,860 feet and it was dry and abandoned.

In Kanawha County, Poca district, United Fuel Gas Co. completed No. 4,724 Kanawha Valley Bank lease

(Continued on Page 107)

"FLEX-SET" PREFORMED YELLOW STRAND

ROTARY LINES

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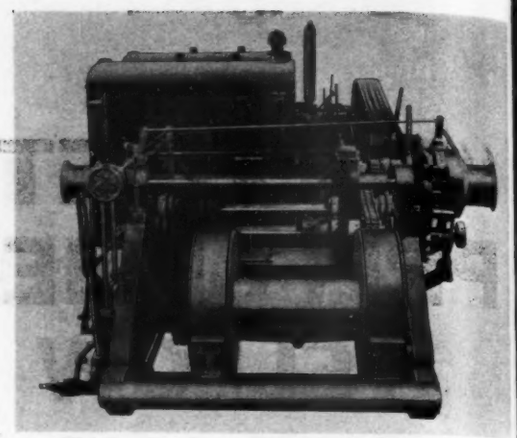
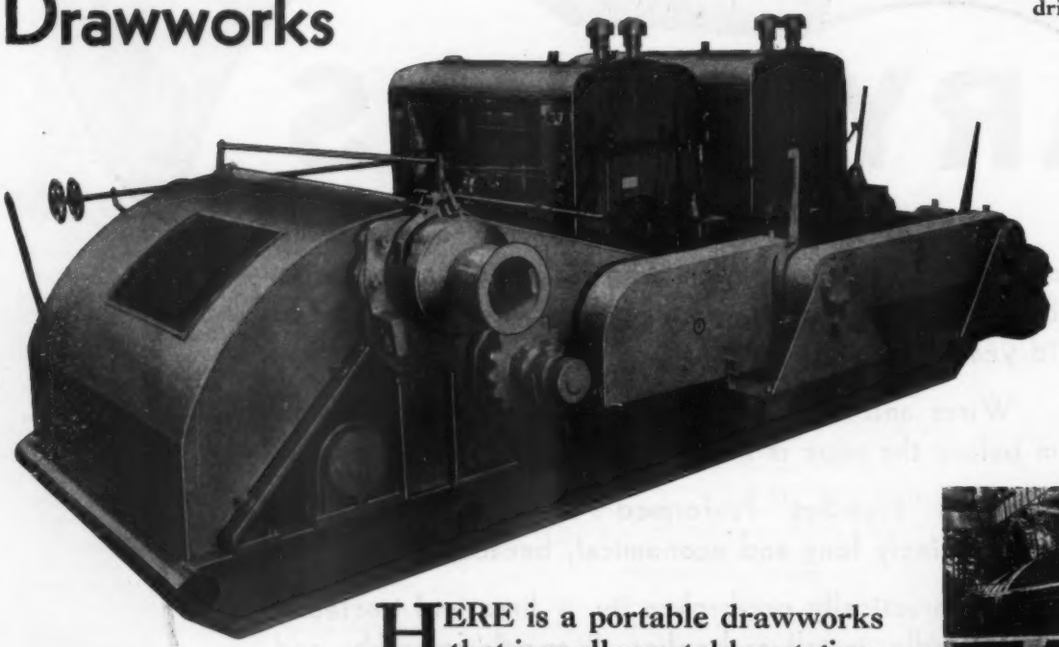


The front view above with the drum guards removed shows the arrangement of the shafts and chain drives. The pump and V-Belt pump drive can be seen in the back.



This side view with the drum covers attached shows the compounding arrangement of the two motors.

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Here is a field view of the Brewster Portable Drawworks drilling a well on a Louisiana lease. Notice the pump drive and the motor arrangement.

SPECIFICATIONS

DRUM SHAFT—5 9/16". JACK SHAFT —3 15/16". All shafts of heat treated chrome nickel steel. 44" O.D. DRUM FLANGES. EQUALIZED BRAKES—9" BRAKE BANDS. 8 LINE SPEEDS. MULTIPLE CHAIN DRIVE with cut tooth sprockets. ANTI-FRICTION BEARINGS used throughout. V-Belt PUMP DRIVE. When powered with two 150 H.P. motors it is easily capable of drilling to 5,000 feet.

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Southwest Texas District

By
GEORGE WEBER

THREE PROSPECTIVE POOLS IN BROOKS, NUECES, STARR

HOUSTON, Tex., Aug. 23.—New sands in proven field areas featured the development in Southwest Texas during the past week. Three fields in Brooks, Nueces and Starr counties had tests showing oil in heretofore undiscovered horizons. In addition, a wildcat in San Patricio County has cored a sand showing oil, and numerous wildcats are getting under way in important prospective areas.

Drilling activity and completions have generally declined in the proven fields of the district, but the number of wildcat tests under way and those beginning combine to show little let-up in exploration for new fields. The Fault Zone tests which last week headed the district's new developments, are not yet producing commercially, but offsetting tests are beginning on two of the three discoveries, and the third wildcat is drilling ahead.

Prospect for additional oil production in the vicinity of the town of Sinton is seen in a showing in Plymouth Oil Co. No. 1-A Odem. The wildcat, in Subdivision 2 of the Archibald Herron Survey, one-half mile east of Sinton, is in San Patricio County. Coring hard limey sand at 5,976-86 feet, operators made a drill stem test. The test at 5,975-86 feet showed a recovery of 100 feet of oily mud, consisting of approximately 75 per cent oil, with a good blow of gas, but no working pressure. The test is being cored ahead.

This is the second wildcat showing reported in San Patricio County in the past month. The first, Danray Oil Co. No. 1 Davis, a tight well, was believed to have cored oil sand at 6,530-40 feet. Casing was run and a test was made. The recovery was apparently unsatisfactory, reported as sulfur water and a little oil, and crew is still testing. Storage was erected in the field at the time of the initial test. In the vicinity of Angelita, and 1½ miles northwest of the Angelita field discovery well, a third wildcat is drilling. It is Wellington Oil Co. No. 1-B Welder, drilling below 7,050 feet.

Important New Sand

The week's most important new sand is being brought into production in the Alta Mesa field of Brooks County by the Standard Oil Co. of Texas. The field, consisting entirely of Standard of Texas production, has three known producing sands. The new discovery was made in the Standard No. 5 Mestina in Lease No. 1 in proven territory.

The test cored a number of sands while being drilled to a total depth of 5,505 feet. Plugging back to 4,997 feet casing was cemented in the hole. Perforations were made last week at 4,513-30 feet, and after a squeeze job, casing was reperforated at 4,513-20 feet in the new sand. On a production test, the well gauged 280 bbls. of oil per day on a quarter-inch choke with tubing pressure of 500 pounds and casing pressure of 900 pounds. The crude tests 45 gravity. Operators are running tubing for completion at latest reports.

The new sand, the fourth for the field, promises increased importance for Alta Mesa. The field is relatively undeveloped, with 10 producing wells and a daily average production of over 500 bbls. The Standard of Texas has three rigs drilling in the field. The amount of undrilled proven acreage, and the production from four horizons, presage continued activity for a long time.

Importance of a newly opened field in Nueces County showed promise of increasing, with a show this week in the Seaboard Oil Corp. No. 1 Shaefer. The test, second to be drilled in the field and an east offset to the same operator's No. 1 Luby, discovery well of the Luby field, has cored a sand at 6,826-54 feet. A drill stem test made at that depth showed a reported recovery of 60 feet of gas-cut mud and distillate in five minutes at a working pressure of 500 pounds. Another test made at 6,847-6,900 feet showed 40 feet of distillate at the same working pressure. The test is drilling ahead.

Another promising sand was cored in the wildcat at 6,409-36 feet where an odor of oil was noted. The discovery well, No. 1 Luby, is producing from sand perforated at 5,048½-50½ feet, after making an initial production of 156 bbls. per day, early last month. Allowable is set at 125 bbls. per day. South of the discovery well, the Stanolind Oil & Gas Co. No. 1 McCann recovered 640 feet of oil and 90 feet of mud at 70 pounds working pressure in a 10-minute drill stem test made at 5,036-53 feet.

New Deep Sand

On the south edge of the shallow Barbacoas field of Starr County, a new deep sand is coming into production, as the K. E. Merren and others No. 1-A Starr County Cattle Co. flows into pits, cleaning from the Conroe sand of the Cockfield age. The sand, cored at 5,470-91 feet, first showed production early in June when it flowed an estimated 50 to 100 bbls. per day together with 12,000,000 to 15,000,000 feet of gas at 5,417½ feet. The distillate producer showed high pressure in tubing and casing, exceeding 2,500 pounds and during recompletion efforts, when it sanded up, a fishing job ensued. The hole was sidetracked at 5,108 feet and the sidetracked hole carried to a total depth of 5,640 feet. Five-inch casing was run to total depth after which this week's test was made.

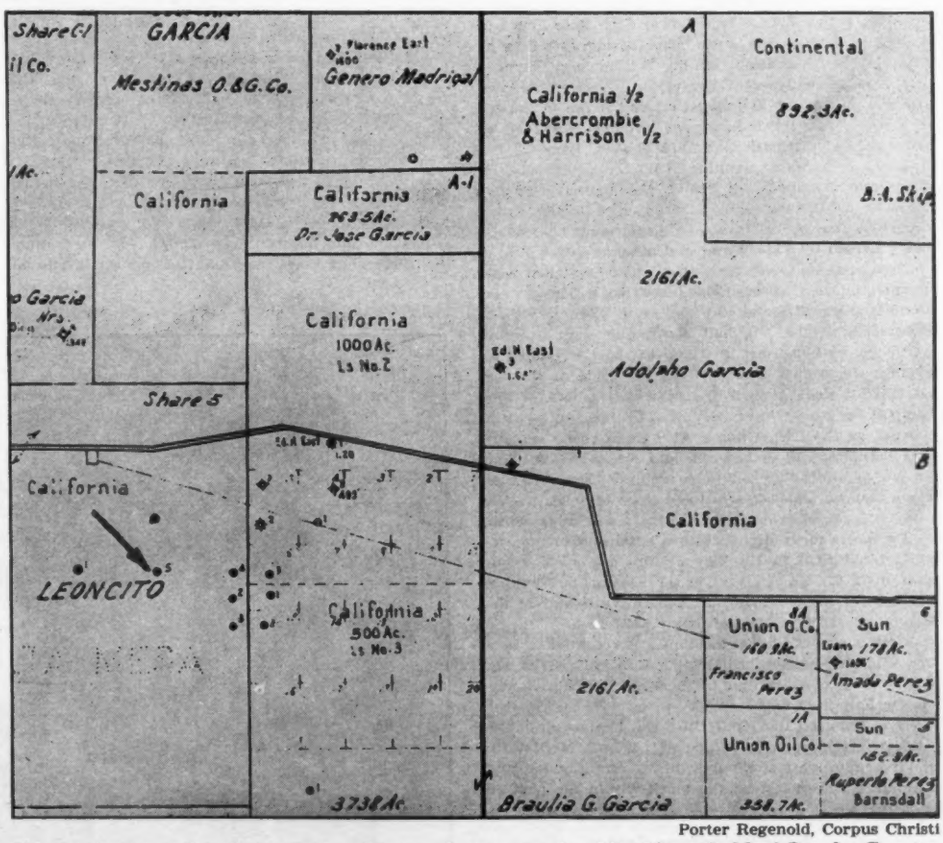
The test, if completed as a producer, will represent an important discovery for the Lower Rio Grande Valley. In the same field, H. Mode is coring in sand with a show of oil at 2,734 feet after testing drilling fluid with a slight show of oil at 2,522-28 feet last week.

Another important deep test is being completed in the Valley area this week. The Atlantic Refining Co. No. 1 Lewis has perforated casing in the field's deep 8,100-foot sand and is cleaning into pits on a three-eighths inch choke with tubing pressure running 2,800 pounds and casing pressure at 2,100 pounds. No. 1 Lewis is south of the Pantana No. 1 McDougal which is producing a high-gravity crude ranging about 52 degrees.

To the north, and located southwest of Corpus Christi, in Jim Wells County, Magnolia Petroleum Co.'s wild well, No. 6 Seeligson, has been successfully capped and killed, and it is expected operators will carry the test to its contract depth. The wildcat has encountered high pressure gas and distillate sands at several depths during its progress, and three weeks ago blew out while coring at 6,503 feet. The well caught fire, destroying rig and considerable other property before being tamed. Protective casing set at 6,160 feet prevented its cratering.

The most active area in Jim Wells County at

(Continued on Page 107)



Porter Regenold, Corpus Christi

A new deep sand is being opened to production in the Alta Mesa field of Brooks County. The Standard Oil Co. of Texas No. 5 Mestina flowed 280 bbls. per day of 45-gravity oil from the sand at 4,513-20 feet. It represents the fourth producing sand to be discovered in the field

East and East Central Texas

By
L. E. BREDBERG

OWNERS ARE STILL HOPEFUL OF OPELIKA TEST IN TRINITY

DALLAS, Tex., Aug. 23.—Wildcat operations in the East Texas district continued last week at a moderate rate, with no exciting developments. Most interesting test at the end of the week was C. & G. Oil Co. No. 1 Newsome, located in the T. C. Lively Survey in southern Anderson County, which recovered shale in coring at 5,908-28 feet, with top of the Woodbine sand expected within the next core or two. If the shale in the core from 5,908-28 feet is Eagleford, and not Austin shale, the well is checking between 80 and 100 feet higher than Placid Oil Co. No. 1 Elliott, a small producer 4½ miles to the southeast in Percilla area of Houston County. Royalty under tracts offsetting this well was offered last week for $35 an acre.

Among the disappointments of the week was Texas Trading Co. No. 1 Southern Pine Lumber Co., in the D. D. Bruton Survey, 12 miles north of Clarksville in Red River County. It had water in its objective sand at 2,073-2,120 feet, and is drilling below 2,300 feet.

Another failure in the Trinity pay zone for Rusk County is apparently in sight for Nivia Oil Co. No. 1 Citizens National Bank, 2½ miles southeast of Henderson, in the M. D. Carmel Survey. It cored slightly porous lime with salty taste at 6,490 feet, is coring ahead around 6,510 feet, below contract depth of 6,500 feet. Base of Massive anhydrite was encountered at 6,420 feet.

Opelika Test Deepening

Tide Water Associated Oil Co., Seaboard Oil Co. and Humble Oil & Refining Co. No. 2 McElreath and Suggett, second wildcat in the Opelika area of Henderson County, is coring below 8,335 feet in Lower Glen Rose lime and shale. It showed salt water after coring soft lime at 7,812-30 feet, but after running Schlumberger survey and making analyses of the water, considerable controversy has arisen as to whether or not the salt water is coming from the Paluxy zone, around 6,050 feet, or from the soft formation at 7,812-30 feet. Pure Oil Co. has been rumored as planning to start a deep test in the Opelika area immediately but officials of that company indicate that the Pure will not drill on its Opelika leases unless production is developed by the second well now being drilled by Tide Water and others.

Two projected deep tests that will be watched with unusual interest were spudded last week. These were Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 Robertson, in the Marshall Mann Survey, 2½ miles southwest of Longview in Gregg County, scheduled to explore the deeper zones on the east side of the big East Texas field, and E. B. LaRue and American Liberty Oil Co. No. 1 Franis Beville, 11 miles southeast of Athens, on the LaRue dome. Also about ready to spud was Stanolind Oil & Gas Co. and Ramsey Petroleum Co. No. 1 Tennie Norris, 5 miles north of Kosse in Limestone County, which is scheduled to go to at least 6,500 feet, unless production is obtained at a shallower depth.

Prospects for a slight western extension to the Sulphur Bluff field in Hopkins County appeared bright as Sun Oil Co. No. 1 Davis, in the Alexander Wetmore Survey, ran 7-inch casing after coring oil sand in the Paluxy pay section at total depth 4,527 feet.

Only one new wildcat location was reported in East Texas last week, Steward Drilling Co. No. 1 N. Young, 1 mile west of Randolph in the S. H. Hitchcock Survey, in Fannin County.

It is reported that Gulf Oil Corp. has acquired the wildcat block recently taken by W. C. McGlothlin about 5 miles west of Pittsburgh, in Camp County, and may start a deep test on the block within the next 30 or 60 days.

New Woodbine Test

A new Woodbine test is under way in Cherokee County with the spudding of Bierman and others No. 1 Edgar Strong, three-quarters of a mile northwest of Mixon.

In the Jarvis area of Anderson, Humble No. 1 Hassell, Trinity project, is reported drilling ahead past 3,500 feet. Roeser & Pendleton No. 3 Bowyer, Trinity failure in the Cayuga field, completed a fishing job and is waiting on cement.

Along the Louisiana border, Danciger No. 1 Tatum, Panola County, is drilling anhydrite and shale at 4,910 feet. Magnolia No. 2 Hull is coring at 7,740 feet.

A west outpost of the Sulphur Bluff field, Hopkins County, Sun No. 1 Davis, is waiting on cement after setting 7-inch casing at 4,504 feet with bottom at 4,517 feet.

Reported still in the Austin, Holt-Young and others No. 1 Chambers, Woodbine test 2 miles north of Keechi in Freestone County, is reported drilling ahead past 4,115 feet. Operators report Sun Oil is doing the paleontology for the well.

In northeast Fannin near Telephone, the O.-J. Oil Co. (Joiner and Owens) No. 1 Gray, Alexander Russell Survey, is drilling at 2,350 feet on 5,000-foot contract.

EAST TEXAS COMPLETIONS

East Texas completions for the week, including top of sand and total depth of wells, and their initial production were as follows:

Gregg County

General American No. 2-B P. McGeorge, 3,490-3,512 feet, 65 bbls. per hour. Gulf Oil Corp. No. 50 M. O. Sheppard, 3,487-95 feet, 47 bbls. per hour. Humble Oil & Refining Co. No. 32 W. W. Holland, 3,565-3,647 feet, 55 bbls. per hour; No. 33 W. W. Holland, 3,562-80 feet, 50 bbls. per hour. Lechner & Hubbard No. 6 J. B. Doby, 3,580-98 feet, 110 bbls. per hour. Joe Long Drilling Co. No. 18-A W. W. Owens, 3,572-82 feet, 55 bbls. per hour. Magnolia Petroleum Co. No. 7 F. M. Fonville, 3,536-59 feet, 100 bbls. per hour; No. 14 Hobart Key, 3,530-45 feet, 108 bbls. per hour. Petroleum Corp. of Venezuela No. 10 G. Jones, 3,577-3,616 feet, 80 bbls. per hour. Rancho Oil Co. No. 5 Richey, 3,574-3,606 feet, 70 bbls. per hour. Selby Oil & Gas and Lewis Production No. 11 Ingram, 3,529-50 feet, 52 bbls. in 30 minutes. Shell Petroleum Corp. No. 18 S. C. Fishburn, 3,489-3,531 feet, 35 bbls. in 30 minutes. Stanolind Oil & Gas No. 13 J. B. Doby, 3,559-3,622 feet, 60 bbls. per hour; No. 17 M. Jones, 3,488-3,560 feet, 60 bbls. per hour. Sun Oil Co. No. 15 M. Thomas, 3,485-3,550 feet, 21 bbls. in 30 minutes. Texas Co. No. 11 G. W. Clark, 3,590-3,600 feet, 70 bbls. per hour; No. 14 E. M. Woods, 3,563-69 feet, 21 bbls. in 40 minutes. American Liberty No. 40 Sabine River Tract No. 5, 3,516-21 feet, 75 bbls. per hour. Empire Oil & Refining Co. No. 14 E. L. Walker, 3,619-46 feet, 14 bbls. in 15 minutes; No. 15 E. L. Walker, 3,613-55 feet, 10 bbls. in 15 minutes; No. 16 E. L. Walker, 3,577-3,629 feet, 11 bbls. in 15 minutes. Humble Oil & Refining Co. No. 23 J. A. Knowles, 3,536-3,608 feet, 50 bbls. per hour. J. R. Sharp No. 3 Duncan, 3,517-31 feet, 15 bbls. per hour. Sun Oil Co. No. 28 A. G. Morton, 3,468-79 feet, 45 bbls. per hour.

Rusk County

Abercrombie & Harrison No. 19 Cantrell, total depth 3,659 feet, 95 bbls. per hour. B. DeMayo No. 2 M. R. Terrell, 3,693-94 feet, 60 bbls. per hour. G. Guthrie and others No. 3 G. P. Perry, 3,712-13 feet, 22 bbls. in 55 minutes. Magnolia Petroleum Co. No. 15 Dick Wells, 3,629-95 feet, 20 bbls. in two hours on pump. G. B. R. Oil Corp. No. 8 E. S. Thrash, 3,750-66 feet, 50 bbls. per hour. Haynes Oil Co. No. 19 Clark Lee, 3,625-35 feet, 20 bbls. in 20 minutes. Henson Oil Co. No. 7 R. A. Motley, 3,805-07 feet, 65 bbls. per hour. C. H. Lyons No. 7 W. P. Moore, 3,554-3,639 feet, 25 bbls. in three hours by heads. D. B. Malernee No. 8 E. B. Alford, 3,670-3,720 feet, 19 bbls. in 30 minutes. Sun Oil Co. No. 2 E. Tucker, 3,625-36 feet, 20 bbls. per hour.

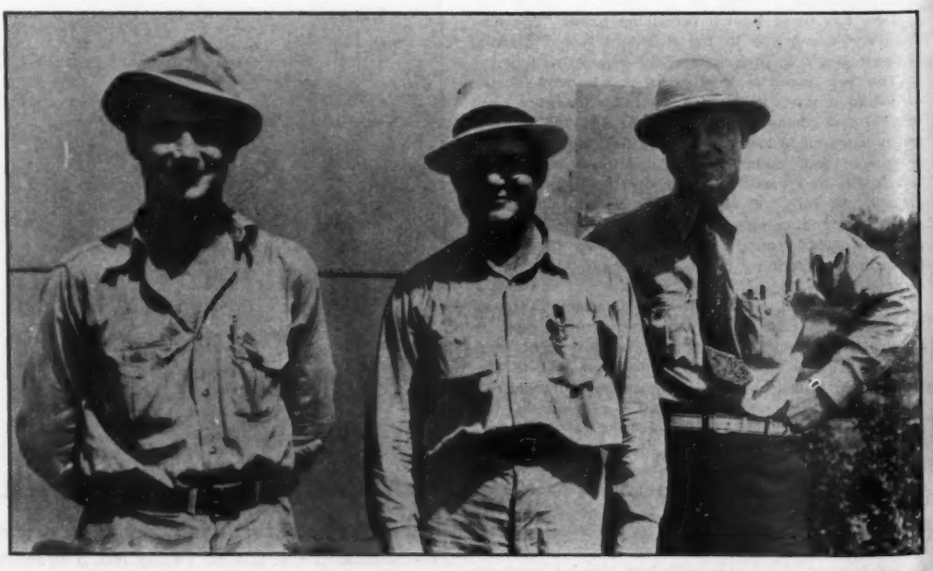
Upshur County

General American No. 11-B A. J. Sanders, 3,653-54 feet, 20 bbls. in 30 minutes. Texas Co. No. 8 D. Culpepper, 3,719-21 feet, 20 bbls. in 24 hours, pumping. Tide Water No. 51-B J. Flewellen, 3,724-36 feet, 8 bbls. in 10 minutes.

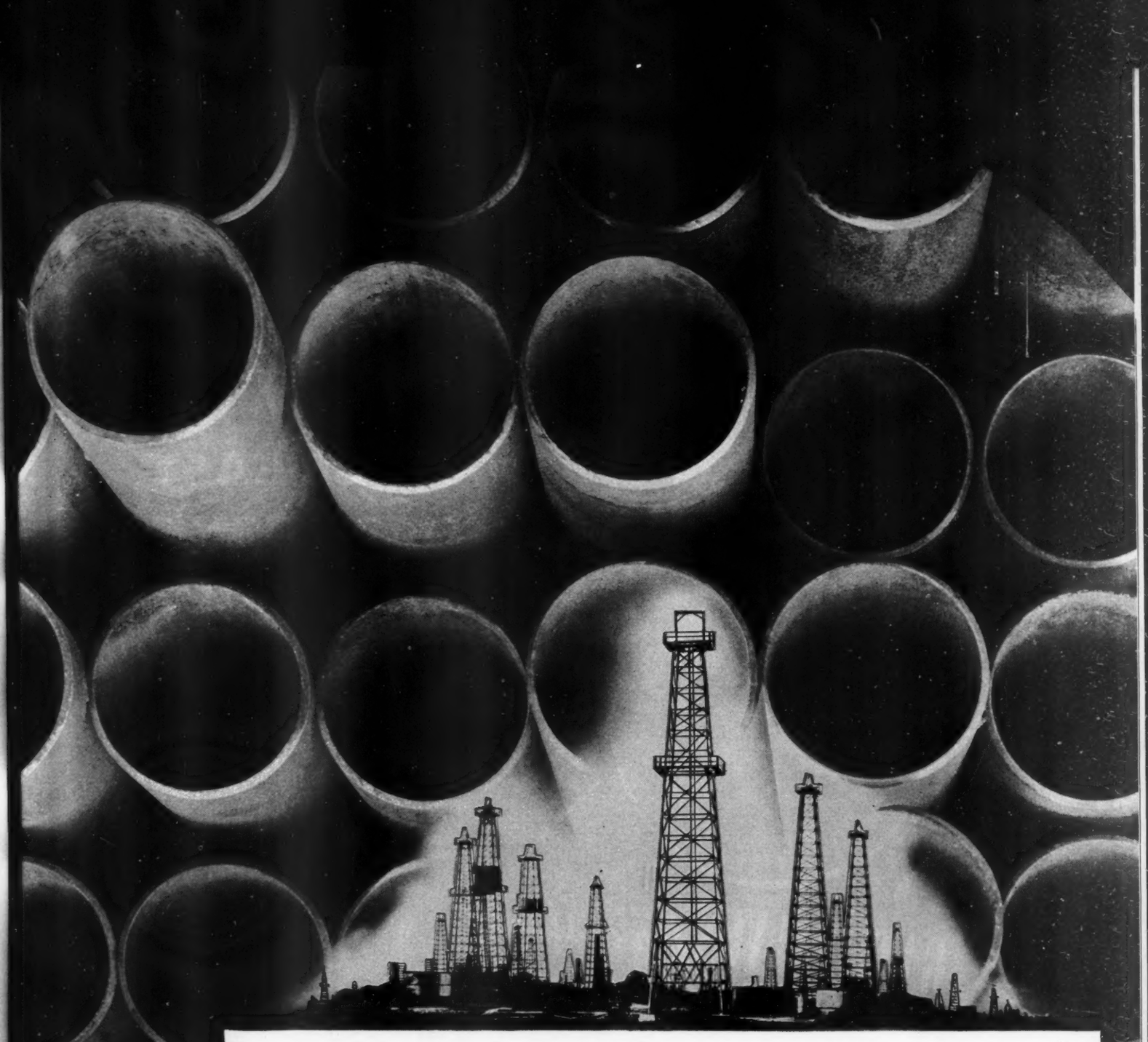
Smith County

Hunt Oil Co. No. A-31 R. W. Fair, 3,644-52 feet, 23

(Continued on Page 121)



B. Rosen, production engineer, Stanolind; J. Knopp, district production foreman, Stanolind; H. Kilgore, district field man, Halliburton Oil Well Cementing Co.



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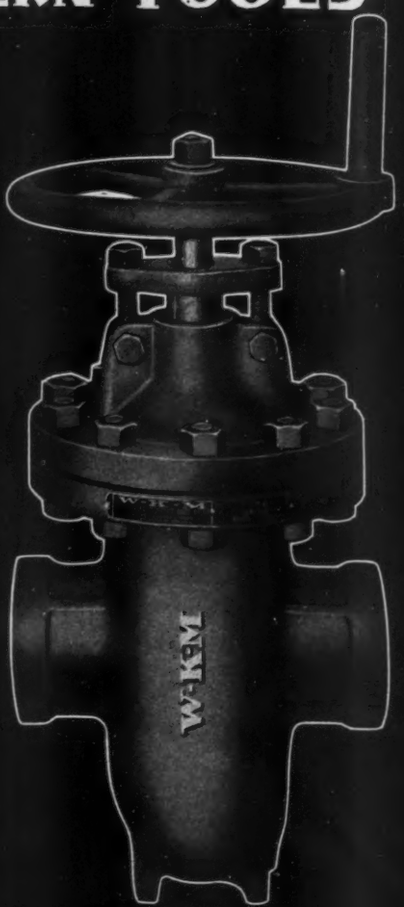

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Texas and Louisiana Gulf

FRIENDSWOOD IS EXTENDED; NEW FIELD SOUTH LOUISIANA

By F. L. SINGLETON

HOUSTON, Tex., Aug. 23.—The assurance of another oil field for the southeast sector of Coastal Louisiana, and the completion of a producer 1¾ miles south of the discovery well of the Friendswood field, Harris County, Texas, were the outstanding developments along the Gulf Coast the past week.

Gulf Oil Corp. No. 3 State PP, located on the Timbalier Bay Prospect, southwest of the Marchland salt dome in the extreme southern part of Lafourche Parish, assured the opening of a new oil field when it tested 1,000 feet of 32-gravity oil, 450 feet of oil and mud and 50 pounds of pressure. Shaley sand showing oil was cored at 6,748-6,896 feet and the test was made in oil sand at 6,749-6,846 feet. The hole will be cored a few feet deeper and casing is scheduled to be cemented for a production test. Although several showings of oil are reported to have been found above the present depth, a previous test at 6,577-95 feet showed 17 stands of salt water and drilling mud. No. 3 State is on a geophysical prospect of several thousand acres found in 1928 by the use of reflection seismograph.

One mile northwest of the discovery well of the South Roanoke field, Jefferson Davis Parish, Union Sulphur Co. was preparing for a production test at No. 1 T. R. S. Farms, bottomed at 9,151 feet with 7-inch casing at that point. The casing is scheduled to be perforated at 9,132-46 feet in a sand section that has shown favorable indications of commercial production. The well is in section 23-10s-4w, on a lease of 800 acres farmed out by Shell Petroleum Corp. The latter company drilled the first test, No. 1 Joe Sturdivant and completed it as a distillate well after plugging back from a total depth of 9,749 feet and completing through perforations at 8,540-50 feet. The well is expected to give the area its first oil producer. It is southwest of the South Jennings field and about 7 miles south of the Roanoke field.

In the same parish and located on the South Elton or China Prospect, Stanolind Oil & Gas Co. was preparing to test No. 2-B Calcasieu National Bank. The hole was drilled to a depth of 9,851 feet and a production test is expected to be made through perforation in sand at 8,955-65 feet. South Elton is located west of the Tepetate field in section 28-7s-3w and is one of several "highs" that have been found extending along a northeasterly southwesterly trend. No. 2-B Calcasieu National Bank is west of the company's first test which was abandoned after the well blew out at a total depth of 9,139 feet.

Big Lake Field

At the Big Lake field, Cameron Parish, which was recently converted from a distillate field into an oil pool, Union Sulphur Co. has two additional wells that have reached the testing stage. No. 1 P. D. Hebert, section 18-12s-8w, cored sand showing oil at 7,831-51 feet and at 8,392-93 feet and casing is being cemented after drilling to a depth of 8,439 feet. No. 1 Henry Hebert, section 18-12s-8w, cored sand showing oil at 9,043-63 feet and is coring ahead below 9,100. The discovery oiler, No. 1 J. O. Hebert, originally brought in as a good oiler from an 8,300-foot horizon, continues to make a high percentage of salt water and is being recompleted.

On the South Crowley Prospect, Acadia Parish, Humble Oil & Refining Co. has made location for a third test, being No. 1 Zoe R. A. Sarver, being located approximately a mile south of two dry holes, being located 466 feet south and 466 feet east of the NW cor. of section 35-10s-1e. This prospect consists of approximately 12,000 acres. The company's first well, No. 1 American Rice Milling Co., was abandoned at a total depth of 9,308 feet, while No. 1 Nordyke was abandoned at 10,056 feet. Both tests are credited with showings of oil and gas. To the north, on what is known as the North Crowley Prospect, same company's No. 1 Federal Land Bank is fishing for drill stem that was twisted off at a total depth of 9,339 feet. The well is looked upon as a possible pool opener since it has shown several hundred feet of pipe line oil on a drill-stem test at 8,086-8,106 feet.

In the Gibson field (Bayou Cocotriz), Terrebonne Parish, Shell Petroleum Corp. has abandoned No. 1 Pelican at 10,727 feet and is driving piling foundation for Nos. 2 and 3 Pelican located in section 19.

At the Marchland salt dome, William Helis is moving in material for No. 2 City of New Orleans, located 1,856 feet north and 140 feet east of SW cor. of SE quarter section 19-23s-23e. The operator's first test proved the structure a salt dome when it encountered the formation at 7,463 feet and is credited with having encountered favorable showings above that depth.

Friendswood's Importance

The completion of V. H. Borsodi No. 1 Taylor, 1¾ miles southeast of the discovery well of the Friendswood field, Harris County, definitely proves this new field as one of major importance and an immediate drilling campaign is expected. While all the details of the well are being withheld awaiting the completion of several trades, the well is credited with having a total depth of 6,100 feet and was completed from a screen setting made at 6,080 to 6,100 feet. No potential gauge has been made but it is reported to have flowed from 22 to 28 barrels of pipe line oil per hour through a three-sixteenths inch choke with tubing pressure 500 pounds. Since the discovery well is producing from sand at 5,802-6,009 feet, No. 1 Taylor is over 100 feet lower and is believed by many to be on the southern edge of the structure. The geophysical picture places the high part of the structure north of the discovery well. Borsodi has made location for No. 2 Taylor, while offsetting the discovery well to the northeast, No. 1 Beamer is drilling below 2,300 feet.

At the Lockridge field, Brazoria County, Gulf Oil Corp. No. 2 Carrie Baker, J. W. Hall Survey, was perforated at 6,361-64 feet and flowed an initial production of 669 bbls. per day through a quarter-inch choke. Kirby Petroleum Co. No. 1 Barrie Baker, a southeast extension test, perforated casing at 6,365-67 feet and has been killed to recomplete after it showed for a distillate producer. Offsetting to the north, Shell Petroleum Corp. No. 1-B Ramsey is testing after perforating casing at 6,358-65 feet. In the same county and located in the Sandy Point field, Brazoria County, H. J. DeArman is rigging up for No. 2 J. A. Fite, located in the SE cor. of Lot 47 in the David Talley Survey, between the discovery well and Stanolind Oil & Gas Co. No. 1 Fite. On a potentiatl test, the latter well flowed 64.85 bbls. of 40.5-gravity oil per day through a quarter-inch

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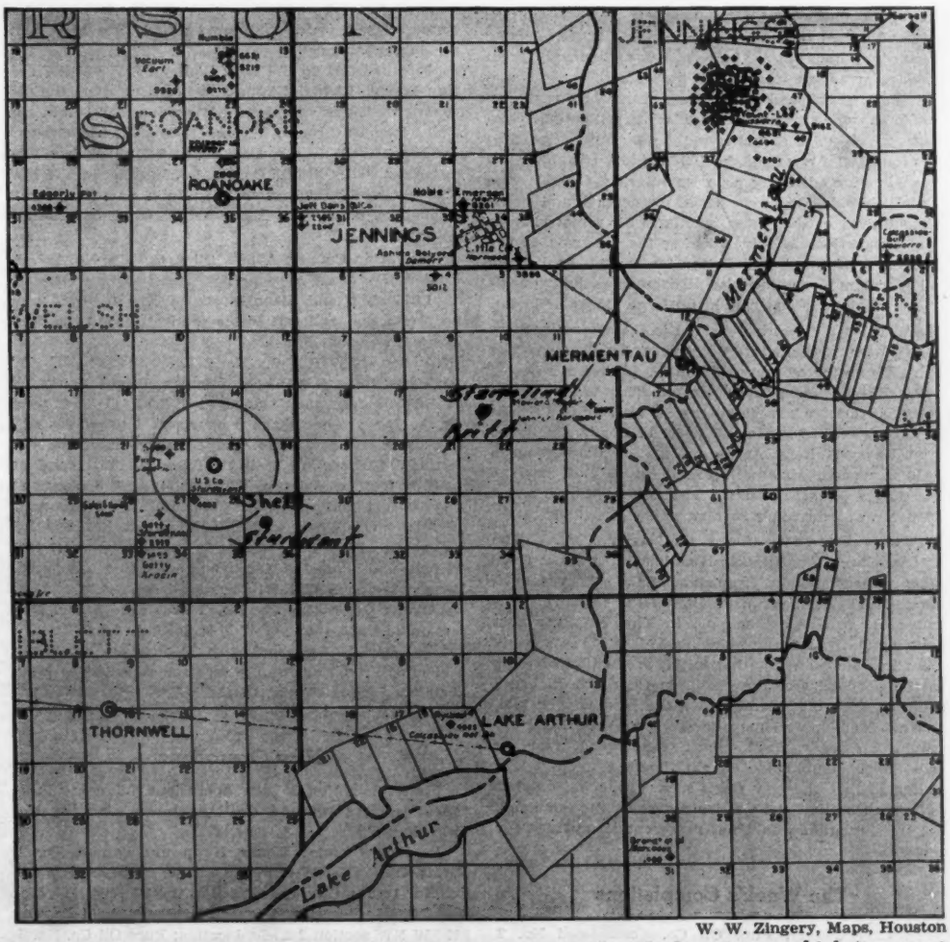

W. W. Zingery, Maps, Houston

Union Sulphur Co. No. 1 T. R. S. Farms, Jefferson Davis Parish, Louisiana, which is expected to give the South Roanoke gas field its first oil production

Central West

By STAFF CORRESPONDENT

11 NEW OIL WELLS ADDED TO SOUTHERN ILLINOIS DISTRICT

MATTOON, Ill., Aug. 23.—Eleven wells were completed in Clay, Richland and Marion counties in the past week, but in the same period 25 new operations were started in the state. Of the week's completions nine were oil wells producing a total of 6,814 bbls. the first 24 hours. The four largest wells of the week started at 1,465 bbls., 1,422 bbls., 1,300 bbls. and 1.275 bbls., respectively.

The Richland County completion was a north offset to the discovery well in the Noble pool. One test in Clay County may be a failure and was shut down at 3,019 feet with little oil showing. A Marion County test was dry and another reported abandoned at a shallow depth.

Oil men from all parts of the country continue to pour into the area of Illinois' new development either as investors or investigators. As the area under development is nearly 150 miles north and south and as much as 60 miles east and west, the visiting oil men are scattered over a large area, making their temporary headquarters in county-seat towns, but moving around from one place to another in an effort to get centralized. Many of the newcomers make Mattoon their first stopping place because it is the headquarters for more of the large oil companies, and after familiarizing themselves with the territory in general, scatter in all directions to look over the ground and decide upon the places in which to make their deals. Prospective oil investors in leases and royalties are meeting with difficulties. Many bankers in the big area are said to be advising farmers to hold out for large prices, and some of them are trying to get into the oil business themselves and for that reason are keeping the farmers in line. Farmers in some areas have been advised to sell only 20-year-term royalties. In as much as the only production thus far found as a result of the 1937 drilling campaign has been in four adjoining counties—Marion, Clay, Wayne and Richland—the prices asked for acreage and royalties in parts of the state, sometimes far removed from any production, is only delaying the progress of the campaign of this year. Better terms may be had by oil operators by dealing with oil companies that were on the ground early and bought up large blocks of leases.

A deal was recently reported in Clay County where Tide Water Associated Oil Co. bought the NW quarter of the SE quarter of section 10-3n-8e, paying a reported $10,000 in cash and $10,000 in oil. Tide Water is also reported to have purchased the SE quarter and S half of SW quarter of section 35-4n-8e, in Richland County, from Harry Walters. Acreage in that area is now up to $100 per acre. Mammoth Producing & Refining Co. bought the N half of section 34-4n-8e for $10,000 and a 25 per cent overriding royalty, and will drill it.

The present production of the Marion, Clay, Wayne and Richland County pools is estimated at about 6,800 bbls. per day and the production of the whole state at about 19,300 bbls. per day. Before the first well was completed in the Patoka pool in Marion County last January, Illinois was producing 12,500 bbls. per day from its old pools. The big initial production of wells in the deep part of the basin, in Clay and Richland counties, falls off steadily after the first day or two, and a 2,500-bbl. well may be down to 1,000 bbls. per day in two weeks. Production figures vary as new big wells come in, and one day in the past week it was estimated that the new fields were producing on that day as much oil as the old fields were on the same day, but this situation would not represent an average for a week.

The Week's Completions

In Clay County, Pure Oil Co. completed No. 2 Oscar Poppe, NE NE SE section 28-3n-8e, and it made 1,275 bbls. of oil through 2½-inch tubing the first 24 hours. Cypress sand was found at 2,618-36 feet, St. Genevieve lime at 2,908 feet and pay at 2,968-77 feet.

Pure Oil Co. No. 1 Oscar Poppe, NW NE SE section 28-3n-8e, is a 1,465-bbl. producer, flowing through 2½-inch tubing from pay at 2,974-83 feet. Cypress sand was found at 2,631 feet and St. Genevieve lime at 2,891 feet. The oil from the two Poppe wells is being shipped to the Indian Refining Co.'s plant at Lawrenceville, Ill.

Pure Oil Co. completed a 1,442-bbl. initial producer through 2½-inch tubing in No. 1 Elizabeth Chafin, NW NW SW section 27-3n-8e, Cypress sand lay at 2,632-48 feet, St. Genevieve lime at 2,906 feet and pay at 2,923-77 feet, total depth.

Wiser Oil Co. completed No. 2 D. Smith, SE SE NE section 28-3n-8e. It started at 1,300 bbls. a day through 2½-ich. tubing. Cypress sand was at 2,632-48 feet, top of St. Genevieve lime not ascertained, pay at 2,980-90 feet, total depth. Standard Oil Co. of Ohio is buying this oil, shipping by tankcar from Clay City to Latonia, Ky.

Pure No. 3 B. Travis, NW NW SE section 33-3n-8e, started at 871 bbls. a day from pay at 2,967-75 feet. The oil goes to the Indian Refining Co. at Lawrenceville. Cypress sand was found at 2,623-38 feet and top of St. Genevieve lime at 2,905 feet.

Pure Oil Co. No. 4 E. Weiler is a disappointment thus far. It is in NE NW SE section 33-3n-8e. It topped St. Genevieve lime at 2,892 feet, and was drilled to 3,019 feet. It was twice acidized but when swabbed produced salt water and some oil. It has been temporarily abandoned.

Pure Oil Co. No. 1 Frank Walters, SW SW SW section 5-3n-9e, Richland County, a north offset to the discovery well, was completed. It produced 997 bbls. the first 24 hours through 2½-inch tubing. It had Cypress sand at 2,610-45 feet and oil pay at 9,253-59½ feet. The discovery well, Ohio Oil Co. No. 1 Arbuthnot in NW NW NW section 8, which came in in July, started at about 2,500 bbls. a day but is down to about 1,000 bbls. a day at this time.

In Marion County, Adams Oil & Gas Co. No. 1 J. A. Rogier, NW cor. SW section 3-3n-1e, had Cypress sand at 1,377 feet and Benoist at 1,497-1,520 feet, with no production and salt water sand at 1,550-1,600 feet. The test was abandoned.

Adams Oil & Gas Co. No. 2 Howell, CWL NE NW section 28-4n-1e, is a 165-bbl. pumper. It had Stein sand at 1,280-90 feet and Benoist at 1,379-1,411 feet, total depth. It was shot with 10 quarts at 1,403-09 feet.

Adams Oil & Gas Co. No. 1 Harry Hudspeth, NE cor. SW SW section 28-4n-1e, found Benoist sand at 1,445-50 feet, total depth. It was shot with 5 quarts at 1,446-48 feet, and pumped 137 bbls. the first 24 hours.

Adams Oil & Gas Co. No. 8 Merryman, NE cor. NW NW section 28-4n-1e, was shot in Benoist sand at 1,416-22 feet, and started at 132 bbls. per day on the pump. Benoist lay at 1,397-1,431 feet, total depth.

Adams Oil & Gas Co. No. 2 Wasem, SE cor. NW section 28-4n-1e, pumped 47 bbls. initially from Benoist sand at 1,421-36 feet, shot with 10 quarts.

Frank Fredericks and others are reported to have abandoned No. 1 Claude Adams, SW SE SW section 28-4n-1e, at 606 feet.

New Operations

First reports on 25 new operations, including locations, derricks up and drilling started, include the following:

In Clay County, Elmer Hupp and others No. 1 Bemis, C SE SE NW section 14-3n-8e, derrick; Pure Oil Co. No. 1 Clay City Banking Co., C NW NW NW section 34-3n-8e, location; Leonard Brothers No. 1 Logan, SE SW NW section 2-3n-6e, location; Pure Oil Co. No. 5 E. Weiler, NE NW NE section 4-2n-8e, derrick; Pure Oil Co. No. 5 B. Travis, NE NW NE section 33-3n-8e, cellar and pits; Pure Oil Co. No. 4 Wilkins, NW SE SE section 28-3n-8e, location; Wiser Oil Co. No. 5 D. Smith, SE NE NE section 28-3n-8e, set 10¾-inch casing at 250 feet, and No. 6 D. Smith, SW SW NE section 28-3n-8e, derrick; Pure Oil Co. No. 7 Oscar Poppe, SW NW NW section 27-3n-8e, derrick, and No. 8 Oscar Poppe, SW NE SE section 28-3n-8e, location; same company's No. 2 C. Wilkes, SE SE SW section 28-3n-8e, and No. 3 Wilkes, SE SW SE section 28-3n-8e, locations; same company's No. 2 A. Travis, NE NW NW section 33-3n-8e, cellar and pits.

In Richland County, Keith & McMahon No. 1 E. C. Taylor, C E half W half section 12-3n-8e, derrick; Anderson & Alfred No. 1 Richland School, 160 feet from west and 90 feet from north lines of NW quarter section 7-3n-9e, location; Ohio Oil Co. No. 1 J. Hanna, NW NW NW section 7-3n-9e, location.

In Jefferson County, L. A. Painter and others No. 1 Ben Osborne, C NW SE section 8-2s-2e, rigging up machine.

In Hamilton County, Sunflower Oil & Gas Co. No. 1 Clark, NW NW SW section 32-3s-5e, location.

In Bond County, J. M. Huber Corp. No. 1 Charles Kunz, SE NW NW section 11-6n-5w, material.

In Marion County, J. I. Staley Drilling Co. No. 1, 75 feet from south and west lines of NE SW section 28-4n-1e, location; Hausman and others No. 2 Mojonnier, 338 feet from north and 112 feet from east line of out Lot 5, C. F. Jones Subdivision, Patoka townsite, NW cor. SW NE SW section 28-4n-1e, set 10-inch pipe at 85 feet, drilling below 150 feet; Vickers and others No. 1 Eliza Farmer, 115 feet from south and east lines of Block 9, Railroad Addition, Patoka, SW SW SE section 28-4n-1e, location; H. & H. Drilling Co. No. 1 Charles Hill, 150 feet from north and 75 feet from west lines of Block 6, C. F. Jones Addition, NE cor. SE SW section 28-4n-1e, location; Texas Co. No. 1 Tom Wiggins, NE NE NW section 1-3n-2e, location for a McCloskey sand test.

In Vigo County, Indiana, Yaw & Pierson No. 1 Hullman, 878 feet from south and 1,220 feet from east lines of SE quarter section 7-11n-9w, moving in machine.

Drilling Reports

Ohio Oil Co. No. 2 Arbuthnot, NE NW NW section 8-3n-9e, Richland County, was drilling at 2,450 feet. Pure Oil Co. No. 1 Frank Walters, SW SW SW section 5-3n-9e, is a near completion with Cypress sand at 2,610-45 feet and oil at 2,953½-59½ feet. Seven-inch casing was cemented at 2,927 feet and the crew was wating for cement to set. No. 1 Arbuthnot was a 2,500-bbls. well, completed in July. R. H. Neely and others were drilling at 2,630 feet in No. 1 Baughman, SE SE NE section 22-3n-10e. Pure Oil Co. had another near completion, No. 1 John Eagleson, NE NE NE section 7-3n-9e, with oil at 2,954-60 feet. Seven-inch casing was set at 2,929 feet and the crew was waiting for cement to set, total depth 2,977 feet. Pure Oil Co. No. 2 Frank Walters, SW SW SW section 5-3n-9e, set 10¾-inch casing at 323 feet.

In Wayne County, J. D. Davis No. 1 Nugen & Ross, SE cor. NE SE SW section 21-2n-5e, was coring at 2,978 feet. F. R. Washburn Petroleum Co. No. 1 W. J. Acols, NW NE NW section 31-2s-6e, was drilling at 1,830 feet. Pure Oil Co. No. 1 Nellie Mullinax, NE NE SE section 27-1n-7e, was at a total depth of 3,144 feet and was rigging up to drill out a bridge. Mammoth Producing & Refining Co. No. 1 D. S. Garrison, NW NW NE section 11-1s-7e, total depth 3,112 feet, was rigged up with standard tools to finish, but was delayed by a recementing job. The crew was waiting for cement to set. Pure Oil Co. No. 1 Noe, SE SE SE section 6-3n-9e, set 10¾-inch casing at 319 feet.

(Continued on Page 119)

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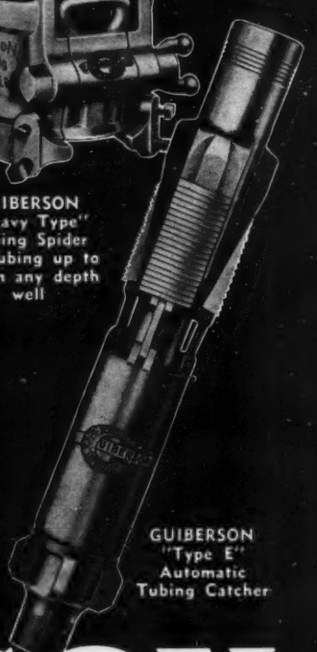

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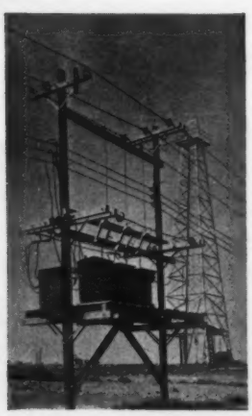

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Oklahoma Operations

By DAL DALRYMPLE

OUTPOST OPENS NEW SECTOR IN SOUTH SEMINOLE COUNTY

A new producing area was opened in southern Seminole County at Gillespie & Moran No. 1 McBride-Gaines, NE SW SW section 20-6-7, west of Sasakwa. It blew out and cleaned the hole after crew had bailed down 1,300 feet, preparatory to drilling plug. On the following day it gauged 34,190,000 feet of gas, with a spray of oil. It was bottomed at 2,745 feet. Some observers thought the pay was in Gilcrease sand, others declared it to be Booch sand and some designated it as Cromwell sand. The well was shut in for connections.

Testing was under way at two of the state's more interesting wildcats. Near Milroy in southeastern Stephens County, Carter Oil Co. and others started washing in at No. 1 Harley, C NE NE section 22-2s-4w, Saturday but operations were delayed Sunday by heavy rains. It may be acidized if efforts to wash in as a producer are unsuccessful. Washing was below the 7-inch casing at 7,475 feet, toward horizons around 7,500 to 7,700 feet, where showings of oil were found. Total depth is 8,175 feet, with operators expected to drill to contract depth of 8,200 feet or deeper if a producer is not completed in upper zones.

Carter Oil Co. and associates were reported testing at No. 1 Crissman, C W half NW SW section 16-25-3w, Grant County wildcat. It had Wilcox sand at 5,400-03 feet, corrected, with pipe set at 5,391 feet in Dolomite. Plugs were drilled Saturday and preparations made to test. On previous drill stem test the well showed both oil and gas.

In Tillman County, Indian Territory Illuminating Oil Co. and Foster Minerals Corp. were bailing and testing at No. 1 Graham, NW SW NE section 1-3s-19w, wildcat south of Frederick. Nine-inch casing was set at 3,071 feet, top of the Canyon lime, which showed oil and gas. Operators were expected to drill ahead with cable tools.

The third producer in the new deep area in the Doyle sector, northern Stephens County, showed gas estimated from 7,000,000 to 10,000,000 feet, with very little oil on initial test, after drilling plug. It was bottomed at 3,746 feet. The second well to be completed since the area was opened recently was Helmerich & Payne and others No. 1-B Wade, NW NW SE section 12-1n-5w, which started off with 480 bbls. of oil daily, cutting 10 per cent water, but on later gauge flowed 290 bbls. of oil daily with no water. Gas gauged 5,000,000 feet.

Proposals to establish proration in the Fitts field of Pontotoc County on the lease basis, with all zones to be produced as a single unit, will be considered at a conference of operators in Oklahoma City August 27. W. J. Armstrong, state conservation officer, who called the conference at request of several of the operators, will present evidence to justify the change from the well basis of production to the lease basis. Due to declines in the Hunton and upper Simpson zones, operators have been considering the lease basis in lieu of per well basis for some time. The operators also will discuss a salt water disposal system for the field with the state planning and resource board, following the proration meeting.

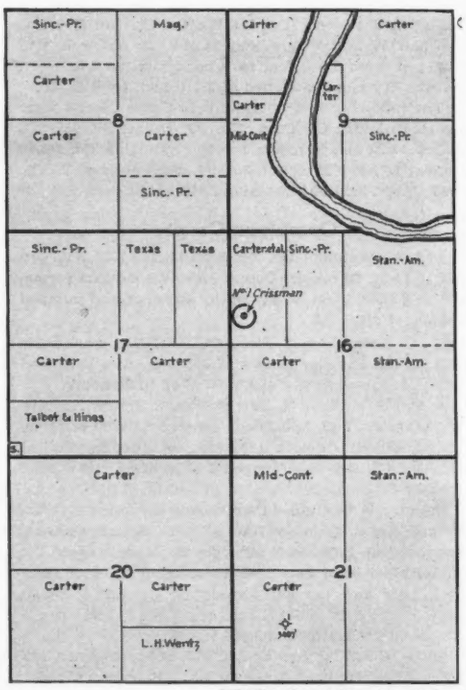
Pontotoc County

Amerada Petroleum Corp. No. 19 Woolley, SW NE SE section 21-2n-7, Fitts field, Pontotoc County, was completed for potential of 2,905 bbls. at 3,676 feet, total depth. It flowed 653 bbls. of oil gross in one hour after acid treatment. Top of Hunton lime was 3,580 feet.

The same operator's No. 17 Woolley, NW NE SE section 21-2n-7, found Hunton lime at 3,638 feet, was bottomed at 3,670 feet, flowed 2,774 bbls. of oil in 19½ hours and later made potential of 2,636 bbls. in 24 hours.

Magnolia Petroleum Co. No. 3 Lewis, SE SW SW section 19-2-7, topped Hunton lime at 3,713 feet, total depth 4,009 feet, was acidized and made potential of 402 bbls. of oil. Same company's No. 7 Woolley, NW NE NE section 28-2-7, found Cromwell sand at 2,512 feet, was bottomed at 2,600 feet and flowed 305 bbls. of oil in 24 hours.

Magnolia Petroleum Co. No. 13 Burris B, NW SE NE section 28-2n-7, flowed 179 bbls. of oil in 24 hours through choke from Cromwell sand topped at 2,420 feet, total depth 2,555 feet. The company's No. 15 Burris B, SE SE NE section 28-2-7, had Cromwell sand at 2,390 feet, total depth 2,530 feet, flowed 158 bbls. of oil in 10 hours, and later flowed 180 bbls. in 24 hours. Same company's No. 7 Smith, SE SE NW section 28-2-7, topped Cromwell sand at 2,345 feet, total depth 2,470 feet, and flowed 305 bbls. of oil in 24 hours. The company's No. 34 Metropolitan Life, SE NW NE section 27-2-7, pumped 19 bbls. of oil in 24 hours after plugging back to 2,600 feet from 2,662 feet, total depth. Top of Cromwell sand was 2,560 feet.



Mid-Continent Map Co., Tulsa

Testing was under way at Carter Oil Co. and others No. 1 Crissman, section 16-25-3w, Grant County, which showed oil on drill stem test

Mabee Consolidated Corp. No. 4 Smith, SW SW NW section 28-2n-7, was completed as an Atoka sand producer at 1,347 feet, total depth. It pumped 41 bbls. of oil in 24 hours.

The Jesse District

Mid-Continent Petroleum Corp. No. 6 Statler, NE NE SW section 2-1n-7, found Hunton lime at 3,762 feet, total depth 4,050 feet, and flowed 302 bbls. of oil in four hours.

Continental Oil Co. No. 6 McCarty, C SE NW section 12-1n-7, found Wapanucka formation at 2,113 feet, was bottomed at 2,149 feet and produced 10,000,000 feet of gas.

Francis Oil Co. and others No. 1 Provence, SW NW NW section 2-1n-7, had Gilcrease sand at 1,852-72 feet, total depth 4,230 feet, plugged back to 1,872 feet, was shot and flowed 27½ bbls. of oil in seven hours. Later it flowed 15 bbls. in 24 hours.

Smith-Lee Oil Co. No. 4 Wade, SE SE NE section 3-4n-7, an old well, was dry and abandoned after deepening from 745 feet to 1,175 feet.

Ramsey Petroleum Co. No. 2 Johnson, SW NW SE section 9-3-7, had a hole full of water and was dry and abandoned at 1,600 feet, total depth.

New work in Pontotoc County: Continental Oil Co. No. 1 Hale, C E half NE NW section 2-1n-7, rig on ground; Crusaders Petroleum Corp. No. 3-C Morin, SE SW SE section 20-2n-7, rigging up rotary; Magnolia Petroleum Co. No. 2 Norris, SW SE NE section 21-2-7, an old well, plugged back from 3,760 feet to 3,642 feet, waiting on cement; Sinclair Prairie Oil Co. No. 4 Vivien, NE SW NW section 22-2-7, building rig; Magnolia Petroleum Co. No. 18 Burris A, SW SW NW section 27-2-7, building rig; Skelly Oil Co. No. 27 Park College, NE NW NE section 28-2-7, rigging up rotary; same company's No. 28 Park College, SE SW NE section 28-2-7, building rig; Dickson Oil Co. No. 1-A Jackson, SE SW SW section 27-5-6, drilling at 250 feet; Kilbourne Oil Co. No. 1 Factor, NW SW SE section 25-5-7, an old well, deepened from 1,108 feet to 2,272½ feet, rigging up standard tools.

Cleveland County

Three wells were completed in the Moore pool, Cleveland County. Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 3 State, SE NE SW section 16-10-2w, topped second Wilcox sand at 7,126 feet, total depth 7,273 feet, flowed 450 bbls. of oil in 24 hours through tubing choke, with 2,240,000 feet of gas. It was completed for minimum allowable of 200 bbls. of oil daily.

Sinclair Prairie Oil Co. and others No. 4 Franklin, NE NE SE section 21-10-2w, also was completed as a minimum well after flowing 503 bbls. of oil in two hours, with 60,000,000 feet of gas. Top of second Wilcox sand was 7,196 feet, total depth 7,233 feet.

Same operators' No. 5 Marvel, NW SE NE section 21-10-2w, found second Wilcox sand at 7,231 feet, was bottomed at 7,254 feet, flowed 752 bbls. of oil in five hours and was completed as a minimum well.

Oklahoma County

Olson Oil Co. and Ritz Oil & Gas Co. No. 1 Crawford, NE NE SW section 15-12-3w, Oklahoma City field, Oklahoma County, topped Dolomite at 6,381 feet, total depth 6,487 feet, acidized and flowed 299 bbls. of oil in 24 hours, cutting 8 per cent basic sediment and acid.

Magnolia Petroleum Co. No. 2 School Land, SE NE NE section 36-14-4w, Edmond area, was bottomed at 6,577 feet and flowed 89 bbls. of oil in 24 hours, with 1,500,000 feet of gas.

Noble County

Continental Oil Co. No. 6 Conway, SE SE SW section 16-23-2w, Billings pool, Noble County, flowed 1,291 bbls. of oil in six and one-half hours, made potential of 2,135 bbls., and was completed at 4,287 feet, total depth.

Shell Petroleum Corp. and others No. 1 Rupp A, SE SW SW section 30-21-2w, North Lucien area, topped Tyner series at 5,578 feet and was dry and abandoned at 5,589 feet, total depth.

Tide Water Associated Oil Co. No. 2 Falke, NW NW NE section 28-23-2w, was digging cellar.

Hughes County

J. F. Smith and others No. 2 Scroggins, NW NW SE section 20-7-8, Fish area, Hughes County, had Booch sand at 2,892 feet, total depth 2,930 feet, was shot and pumped 52 bbls. of oil in 24 hours.

Cities Service Oil Co. No. 4 Born B, SW NE NW section 20-7-8, topped Booch sand at 2,894 feet, total

depth 2,942 feet, swabbed 100 bbls. of oil in 24 hours, was shot and pumped 31 bbls. in 24 hours.

Sinclair Prairie Oil Co. No. 17 Oliphant, C SE section 1-9-8, was completed as a repressure well at 1,735 feet, total depth.

Seminole County

Winona and Cities Service Oil Co. No. 1 Keys, NW NE NE section 19-7-8, Fish area, Seminole County, had Gilcrease sand at 2,965 feet, total depth 3,016 feet, was shot and swabbed 329 bbls. of oil in 24 hours.

D. Malarnee and others No. 3 Flowers, SE SE SW section 29-7-6, found sand at 2,966 feet, was bottomed at 2,995 feet, swabbed 40 bbls. of oil in 12 hours, was shot and pumped 120 bbls. of oil and 47 bbls. of water in 24 hours.

Estimated Daily Production

Estimated daily production of Oklahoma for the week ending August 21, and for the preceding week, was as follows:

	Barrels	
	Aug. 21	Aug. 14
Allen	5,425	5,200
Billings	7,575	7,250
Burbank	8,075	8,250
South Burbank	15,750	16,125
Balance Osage	21,725	22,200
Blackwell district	5,500	5,475
Bristow-Slick	7,625	7,600
Chandler	2,950	2,975
Crescent	10,300	9,225
Cromwell	3,400	3,425
Cushing-Shamrock	10,750	10,800
Duncan district	4,000	4,225
Edmond	18,700	17,750
Fish	7,000	6,825
Fitts	97,550	98,725
Jesse	4,650	3,800
Graham	4,425	4,525
Gray	1,150	1,250
Healdton	10,250	10,000
Hewitt	4,375	4,425
Holdenville	900	900
Keokuk	9,975	8,425
Konawa	1,450	3,075
Lucien	14,825	15,500
Moore	11,950	11,750
Oklahoma City	162,200	157,200
Olympic	12,275	12,550
Polo	1,075	1,100
Sasakwa and townsite	2,725	2,500
Sholem-Alechem	3,175	3,100
Seminole:		
Bowlegs	11,850	11,750
Carr City	5,425	5,425
Earlsboro	6,275	6,575
South Earlsboro	725	725
East Earlsboro	7,625	7,775
Little River	11,400	11,975
East Little River	1,325	1,100
Maud	850	800
Mission	2,075	2,075
Seminole	9,400	9,275
East Seminole	3,025	2,900
Searight	4,525	4,275
Total Seminole	64,500	64,650
St. Louis-Pearson	20,250	20,750
Tatums	5,475	5,700
Tonkawa-Garber-Thomas	5,025	5,050
Wewoka	3,250	3,225
Yale-Jennings	4,275	4,300
Other pools	79,100	79,100
Total Oklahoma	653,600	648,925

Pottawatomie County

Shell Petroleum Corp. and Amerada Petroleum Corp. No. 1 Means, SW SW SE section 32-9-3e, Pottawatomie County, was an abandoned location.

Magnolia Petroleum Co. No. 2 West, SW SE NE section 26-6-4e, new test in Pottawatomie County, was a location. J. F. Smith No. 1 Brandenburg, SW NE SW section 3-7-4, an old well being deepened from 2,918 feet, old total depth, was drilling at 4,055 feet. Gulf Oil Corp. No. 1 Lohn, SW NW NW section 13-7-4, was a rig.

Pittsburg County

Southwest Gas Utilities Co. No. 1 Amos, NW NW SW section 10-7-18, an old well in the Quinton district, Pittsburgh County, was deepened from 1,835 feet to 1,950 feet, and gas increased from 9,900,000 feet to 25,000,000 feet.

New work in Pittsburg County: Utilities Production Corp. No. 1 Webster, C NE NE section 18-7-18, drilling at 105 feet; J. E. Weible No. 1 Caesar, NE NE SE section 7-8-16, drilling below 100 feet; Utilities Production Corp. No. 1 Wilburton State Bank, SE SE NE section 9-7-18, an old well deepened to 1,852 feet, produced 29,500,000 feet of gas; same company's No. 1 Bascomb, NW NE SW section 10-7-18, an old well deepened from 1,892 feet to 1,996 feet, produced 23,500,000 feet of gas.

Logan County

Phillips Petroleum Co. No. 4 Pfeiffer, NW SW NE section 4-19-2w, Lucien field, Logan County, had first Wilcox sand at 4,915-51 feet, topped second Wilcox sand at 5,000 feet and was completed at 5,133 feet, total depth. It flowed 62 bbls. of oil in 24 hours.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 9 Pfeiffer, NW SW SW section 33-20-2w, was building rig for a new Logan County test. Hall & Briscoe and others No. 1 Schlopp, SW SW SE section 32-20-2w, a Phillips Petroleum Co. farm-out, was a location.

Osage County

Lewis Production Co. No. 4 Osage, SW NW SW section 27-24-7, Naval Reserve field, Osage County, had Bartlesville sand at 2,589 feet, total depth 2,674 feet, flowed 40 bbls. of oil naturally in 24 hours, was shot and flowed 161 bbls. in 24 hours.

Kewanee Oil & Gas Co. No. 2 King, SW NE NW section 33-36-6, topped Bartlesville sand at 2,937 feet, was bottomed at 3,012 feet, was shot, swabbed 90 bbls. of oil and 50 bbls. of water in 24 hours, and pumped 75 bbls. of oil and 12 bbls. of water daily. It is in the South Burbank area.

Moore Oil Co. and others No. 3-A Osage, SE NE NE section 2-21-8, had Layton sand at 1,241-59 feet, total depth, and was estimated good for 8 bbls. of oil daily. Moore and others No. 1 Osage, NE NW SW section 34-21-9, was an abandoned well.

Midco Oil Corp. No. 2 Osage, SE SW NE section 18-22-10, had a junked hole and was abandoned at 1,981 feet, total depth.

Pure Oil Co. and Sinclair Prairie Oil Co. No. 174 Osage, NW SE NW section 5-23-8, was shot and pumped 26 bbls. of oil daily from Burgess sand at 2,333 feet, total depth 2,338 feet.

Continental Oil Co. No. 1 Osage, NE NE NW section 29-24-9, had a hole full of water and was abandoned at 2,212 feet, total depth.

Indian Territory Illuminating Oil Co. No. 8 Osage, C E half W half SW section 13-24-9, an old well, was deepened from 2,095 feet to Wilcox sand at 2,406 feet, but was dry and abandoned at 2,410 feet, total depth.

The following new operations in Osage County were reported: Midco Oil Corp. No. 2-A Osage, SE SW NE section 18-22-10e, location; Lewis Production Co. No. 8 Osage, SW NE NE section 33-24-7, rig; Coralena Oil Co. No. 1 Osage, SE NE SE section 29-24-7, location.

Okmulgee County

Lease Investment Co. No. 5 Field, SE NW NW section 16-14-11, Okmulgee County, had Wapanucka formation at 2,455-78 feet, total depth, was shot and pumped 12 bbls. of oil daily.

W. O. Schock No. 2 Field, CSL NE NW section 16-14-11, found Dutcher sand at 2,389 feet, was bottomed at 2,411 feet, and flowed 450 bbls. of oil in 24 hours.

Eagle-Picher Lead & Zinc Co. No. 3 Henry, NE NW SE section 27-12-12, had Booch sand at 2,426-39 feet, the hole filled with water at 2,712 feet, total depth, plugged back to 2,470 feet and pumped 6 bbls. of oil and 6 bbls. of water in 24 hours.

Failures in Okmulgee County were as follows: D. W. Howard No. 3 Trumbo, NW SE NE section 18-14-15, abandoned at 1,670 feet, total depth; Acme Supply Co. No. 1 Reeder, C N half NW NW section 29-14-11, total depth 2,488 feet, dry and abandoned; English & Smith No. 1 Wade, SW NW SE section 11-11-13, total depth 1,435 feet, dry and abandoned; Hennessey Oil Co. No. 1 Dollinson, C NW SE section 33-12-12, abandoned at 1,475 feet, total depth; Tom Newman No. 1-B Byrd, C E half NW SE section 25-12-13, abandoned at 1,355 feet, total depth; W. A. Anthony No. 1-A Anderson, SW NW SW section 33-12-14, total depth 655 feet, dry and abandoned.

New work in Okmulgee County: Prince & Brown No. 2-A Warner, SW SE NE NE section 21-14-14, drilling at 400 feet; C. M. Steele No. 1-A Lumpkins, C S half NW NE section 34-14-14, drilling at 900 feet; D. W. Howard No. 2-A Barnett, SE SW NE section 18-14-15, machine; R. H. Ford and others No. 5 Havercamp, C SW NE section 29-15-14, location; Francis Oil Co. No. 2-A Lemons, C N half NW NW section 33-15-14, machine; E. E. Karam No. 2-A Kirchner, NW SE SE section 21-16-14, location; Allen and others No. 1 Chambers, SW NE SE section 25-16-11, drilling at 250 feet; E. H. Moore No. 1 fee, NE NE NW section 14-14-13, drilling a 545 feet; W. O. Schock No. 3 field, SE NE NW section 16-14-11, location.

Creek County

Carpenter & Hauser No. 2 well, SW NW SW section 30-18-11, had Dutcher sand at 1,728 feet, total depth 1,744 feet, was shot and pumped 12 bbls. of oil in 24 hours. It is in the Sapulpa area, Creek County.

Garvin County

Skelly Oil Co. No. 1 Hinkle, NE NW SW section 32-1n-3w, Tussy pool, Garvin County, had three pay zones from 2,917 feet, was bottomed at 3,175 feet and pumped 256 bbls. of oil in 24 hours.

Cox & Hamon No. 2 Craig, SW NE NW section 32-1n-3w, plugged back to 2,380 feet from 3,017 feet, total depth, and pumped 75 bbls. of oil daily. It had pay sands from 1,575 feet.

Tulsa County

Mid-Continent Petroleum Corp. No. 2 Koontz, SE SW NE section 9-19-12, Tulsa County, produced 1,500,000 feet of gas and was completed at 1,623 feet, total depth. Burgess sand was topped at 1,607 feet.

L. L. Boyd and others No. 1-A Owens, NW NW SW section 25-18-14, was bottomed at 1,352 feet and completed as a 7-bbl. pumper.

Wagoner County

J. E. Pitts No. 1 Childers, C NW NE section 27-17-15, Wagoner County, had a showing of oil and a hole full off water at 1,881-85 feet, total depth, and was abandoned.

Carter County

Magnolia Petroleum Co. No. 13 Thompson, SW NE NW section 9-4s-3w, Healdton field, Carter County, was completed as a 15½-bbl. pumper at 1,007 feet, total depth.

Sun Oil Co. and others No. 10 Arrington, NE NE NW section 8-4s-3w, was dry and abandoned at 1,842 feet, total depth. Carlos Wagner No. 1 Eaves, SE NW NW section 4-2s-2w, was dry and abandoned at 350 feet, total depth.

First reports of new activity in Carter County: Magnolia Petroleum Co. No. 2 James, SE NE SW section 17-2s-2w, location; Roy M. Johnson No. 20 Davis, NW SE SE NW section 6-4s-3w, drilling at 225 feet; Snowden & McSweeney No. 30 Apple & Franklin, NW SW NE section 9-4s-3w, pits; Rockland Oil Co. No. 27 Sarasota, NE NW NE section 23-4s-3w, an old well being deepened from 1,206 feet, drilling at 1,261 feet; Magnolia Petroleum Co. No. 1-A Cement-Hinley, NE NE SE section 35-6n-10w, moving in tools.

Marshall County

Stewart Taylor No. 2 Chestnut, NE cor. section 23-8s-5e, Marshall County, was bottomed at 815 feet, plugged back to top of pay at 748 feet, and pumped 12 bbls. of oil and 8 bbls. of water daily.

Grady County

Texas Co. No. 1 Harton, NW SW NW section 8-3n-5w, Knox area, Grady County, was dry and abandoned in sandy shale at 2,982 feet, total depth.

Stephens County

George L. Pace and associates No. 12 Allen, SE SE NE section 3-2s-8w, Stephens County, topped sand at 2,190 feet, total depth 2,205 feet, plugged back to top of sand, drilled to 2,193 feet and was completed as an 8-bbl. pumper.

L. A. Williams and others No. 3 Robberson, NE SE NE NE section 15-2s-5w, was drilling at 940 feet. George L. Pace and others No. 1 Woodward, SW SE NE section 14-2s-8w, was drilling at 1,298 feet.

Jefferson County

Farlyn Oil Co. No. 48 Seay, NE SE SW section 3-7s-5w, Jefferson County, was completed as a 50-bbl. pumper in sand at 1,229-48 feet, total depth 1,272 feet, after a shot. Same company's No. 49 Seay, NE SE SW section 3-7s-5w, had sand at 1,077 feet, total depth 1,092 feet, was shot and pumped 50 bbls. of oil daily.

Palmer and others No. 3 Grayson, SW SE SW section 19-6s-5w, found sand at 1,518 feet, total depth 1,542 feet, and pumped 32 bbls. of oil in 24 hours.

Two new tests in Jefferson County were reported. Farlyn Oil Co. No. 50 Seay, CEL SE SW section 3-7s-5w, was a location. Same company's No. 51 Seay, NE SE SE SW section 3-7s-5w, set 7-inch casing at 1,085 feet, total depth 1,100 feet, and was waiting on cement.

Comanche County

Ashcraft & Palmer No. 8 School Land, NE SE SE section 20-2n-10w, Comanche County, was abandoned at 888 feet, total depth.

Caddo County

Magnolia Petroleum Co. No. 8 Lackey, SE NW NW section 11-5-9w, Cement field, Caddo County, had sand at 4,001-20 feet, total depth, and pumped 58 bbls. of oil daily.

English Drilling Co. No. 5 Abernathy, C SE SE sec-

(Continued on Page 104)

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Among Gulf Coast Drilling Contractors

The South Central Drilling Co., with headquarters in the Ricou-Brewster Building, Shreveport, La., has moved its second rig from the Rodessa field to South Louisiana where it is rigging up for No. 1 Thomas J. Markley and others, on the Church Point Prospect in Acadia Parish, Louisiana, for the Superior Oil Co. of California. This is the second rig the company is operating in that sector, as one of its dual drawworks rigs is located on the west flank of the Jennings field for the same company.

R. B. (Cap) Fields is nearing the pay horizon on the west flank of the old Jennings field in Acadia Parish for Frank Bennett and others, while in the Dickinson field for the Kenben Oil Co. No. 5 Maco Stewart has been spudded.

H. J. DeArman is skidding rig at the Sandy Point field in Brazoria County for No. 2 J. A. Fite which will be drilled for himself and others.

Cron & Gracey have 12 rigs running. At the Chocolate Bayou Prospect, Brazoria County, Texas., one outfit is nearing a critical depth for the Ohio Oil Co., while the balance are located as follows: One at the recently opened Lake Long field in Lafourche Parish for the Fohs Oil Co.; two at Hackberry for Stanolind Oil & Gas Co., and one in the Lockport field for Magnolia Petroleum Co. Along the Texas Coast the firm is drilling in the South Houston, Hastings and Dickinson fields for Stanolind Oil & Gas Co., while the balance of the firm's rigs are active in the Flour Bluff and Tomball fields for Humble Oil & Refining Co. and Shell Petroleum Corp.

George Echols completed the first producer in the north extension of the Heyser field for Sinclair Prairie Oil Co. and has moved over and spudded a second well for the same company on the Bennett lease. One outfit is drilling for Echols himself in the same area while at Gillis in Calcasieu Parish and the Lodi area of Marion County, three rigs are running for the Fohs Oil Co.

Harry L. Edwards received contract for an interest test to be drilled by Maco Stewart at the Hitchcock Prospect in Galveston County. Two tests have been drilled in the area and encouraging showings of oil and gas were encountered. Seven other operations are located at Kingsville in Kleberg County for himself, two at Dickinson for Turman Oil Co. and the Kenben Oil Co., one at Hastings and Amelia for Humble Oil & Refining Co., one at Lockridge for the Kirby Petroleum Co. and one at the Hardin area in Liberty County for the Woodley Petroleum Co.

Glenn H. McCarthy has completed No. 4-C Longe at the Amelia field for himself and is skidding over for another test, while at the Palacios area, Matagorda County, four operations are reported for the Atlantic Refining Co. and Sun Oil Co.

Nicklos Drilling Co. has three outfits located in the Valentine field in Lafourche Parish for the Pan American Production Co., being Nos. 8, 9 and 10 Harang, while in the Tepetate field in Louisiana for the Continental Oil Co., No. 2 Vincent Welch is below 5,158 feet. At Villa Plate in Evangeline Parish, Continental Oil Co. No.

(Continued on Page 131)

Charlie Jacks, leaseman, and J. Barney Whisenant of the W. T. & D. Production Co., with production in the Branyon field of Caldwell County, Texas, photographed at No. 3 Magee in the extension area of the field

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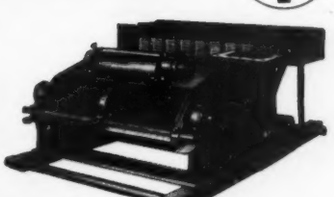

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Michigan Field Report

DEVONIAN GETS GOOD WELL IN ALLEGAN COUNTY FIELD

By
O. C. PRESSPRICH

SAGINAW, Mich., Aug. 23.—For the first time in many weeks the focus of oil men's eyes in Michigan has swung away from Gladwin County's rich Buckeye field to the Salem Township field in Allegan County, a good 125 miles distant as the crow flies.

The swing was prompted by the performance late in the week of Michigan Devonian Corp. No. 3 Brower, NW SE SE section 17, Salem Township, which showed an initial natural flow of 500 bbls. a day from the Traverse limestone to rank itself as the Salem area's best well. Scarcely had the drill penetrated the cap rock at a depth of 1,559 feet when the hole began to fill rapidly. Drillers started to pull the tools, preparatory to bailing, but were interrupted by a head of oil backed by an unexpectedly heavy gas pressure. Oil sprayed all over the nearby landscape and the drilling crew fought for three hours to cap the well. Emergency tankage rushed to the location recorded a flow of slightly above 500 bbls. in the first 24 hours.

Devonian's Brower well found the top of the Traverse structure at a level about 10 feet higher than in any other Salem Township well. As soon as adequate tankage could be provided it was planned to deepen the hole, which was reported less than a foot in the Traverse.

Another Salem completion the past week was the same company's No. 3 N. Seabright, NE SE SE section 17, which Devonian bought from Lentz & Miller, Inc., while still drilling. The Seabright was completed at a depth of 1,601 feet after topping the Traverse at 1,572 feet for an initial natural flow of 200 bbls., reported being well maintained.

Buckeye—Wicklund Pool

Fringing the north (Wicklund) Buckeye Township, Gladwin County, pool in all directions, continually pushing outword the boundaries of Michigan's most prolific single pool, a dozen wells added to daily output the past week, or were on top of the Dundee stratum, ready to strike the pay.

The past week's developments, more than any for some time, featured the outposts of the Wicklund pool, and added scores of acres as potential locations for development. Fringe tests were more prominent this week than for some time, and were marked by an extraordinary degree of success, attesting the possibility of pushing the boundaries in all directions from the discovery hole.

Several companies shared in the week's successes. Major, however, were the Sun Oil Co. with three border wells and J. V. Wicklund Development Co. with a like number. Probably the most significant, however, was James Flanigan No. 1 Schultz in section 9, a previously undeveloped territory at the extreme west side of the pool, which came in with a show of oil.

Northwesterly development of the north pool held the spotlight of attention with important developments in that sector opening a vast territory. Most northwesterly of the lot was Sun Oil Co. No. 1 Strohkirch, NE SE SE section 4, which was reported about to strike pay, with formations regular. Two other Sun Oil Co. wells in section 10, also northwesterly developments, which give promise to the success of the section 4 venture, came in at approximately 800 bbls. each. They were No. 2 Luhs in the NE NW NE, and the No. 1 Strohkirch in the NE NE NW. Both wells are about 2 miles northwest of the discovery well, while the Sun well in section 4 is a still more distant outpost.

Interest was focused the past week on James E. Flanigan No. 1 Schultz, in NE SE NW of section 9, a test effort which gave a showing of oil accompanied by a showing of water, not, however, believed to be from the Dundee stratum. Pipe was pulled after the water show, and operators made ready to rerun. Success of the Flanigan effort would open up additional acreage to the west of the north pool.

Wicklund Development Co. added a parcel of territory to favorable production in the northwestern part of the pool with its State K-1 in the SW SE SE of section 3, which came in at an estimated 30 to 40 bbls. an hour. The well was considered one of the best of the week's developments among the outposts. Another Wicklund well in section 2, a northern extension of the field, had a quantity of oil in the hole and was being prepared for acid.

Wicklund also shared in pushing the eastern borders of the north pool into the favorable production column with the development of its State E-2 in the SE NW SW of section 12. The hole filled up with oil ond was scheduled for acid treatment. It added another favorable test well to the section 12 developments.

Socony-Vacuum Oil Co.'s well, NE SE NW section 12, an eastern extension of the field, developed favorably, and was being prepared for acidization after a 160-bbl. natural flow.

C. W. Teater No. 6 Adamets, SE SE SW section 12, is shut down in the Dundee, awaiting cement at the 5-inch casing point.

A southern development of the north pool is Mammoth Producing & Refining Co. State D-3, NE SE NE section 13, which was drilling in the Dundee topped at 3,548 feet.

Daily Crude Oil Co. No. 2 Jacab, NE SW SE section 10, same in with 200 bbls. daily after acid, and Rex Oil & Gas Co. No. 2 Jacab, NW NE SE section 11, was fishing for tools preparatory to moving downward.

Buckeye—Oard Pool

The midway area lying to the north of the south, or Oard, pool held the important attention over developments in the Oard pool itself the past week with the bringing into production of a second well by George G. Hanners on his Armstrong lease. Hanners brought in the discovery well in the sector, the "tattle-tale" being his No. 1 Armstrong. His No. 2, in the SE NE SW of section 23, came in with a small initial like its mate, No. 1, and gave promise that it would acidize up to 150 bbls. daily. Hanners drilled his No. 2 well in defiance of two dry holes put down as offsets to his discovery well.

In section 27, to the westward of south pool development proper, T. F. Caldwell still was rebuilding his rig after a fire which halted developments at his SE SE NE location.

In the Oard pool proper several wells developed during the week and others were ready to drill in. Gordon Oil Co. brought in two wells, each rated as 200 bbls. daily. Both are in section 36, in the SE SW NE and the NE SW NE.

Bell & Marks added another producer to its holdings when No. 3 Lincoln Life, SW NE SE section 35, developed 250-bbl. natural production. Rex Oil & Gas Co. No. 3 Hall, in SW NE NE section 35, was reported 60 feet in the Dundee and expected to reach the pay at any hour.

Billings—Gladwin County

Gordon Oil Co. No. 2 Ashley, SW SW SW section 4, is being completed in the Dundee after a show of oil. Operators said the well would be brought in this week. The Billings test is an easterly extension from the south (Oard) pool in Buckeye.

Mammoth Producing & Refining Co. will be the first in the Buckeye field to probe the Monroe stratum, lying below the Dundee sand, if present plans go forward on its No. 1 Oard well in the SE SW NE of section 25.

It was drilled into the Dundee recently, and logged a small pay, but considered insufficient to bring into production. The well was plugged, and labeled as a dry hole, although only a few locations from Beaver Trust No. 1 Oard well, the discovery well of the Buckeye field.

Now the plug is being removed, and drillers plan to go into the Monroe in search of paying production. Structure of the lease, which runs high—in fact, the highest in the field—is said to have aided the decision to probe the Monroe stratum. Many geologists predict deeper wells, beyong the Dundee, are next in prospect for Buckeye.

Hay—Gladwin County

Operations at Dibble Brothers No. 1 Kimble, SW SE SW section 16, Hay Township, which is looked on by operators as an important test lying far to the eastward of the north (Wicklund) pool in Buckeye, was shut down late in the week as casing was awaited. The formations are said to be regular, and if successful would extend materially the Gladwin County pool.

Leasing Activities

Michigan's two newest oil fields—Buckeye in Gladwin County and Salem in Allegan County, separated by a crow-flight distance of about 125 miles—continue to draw the major share of drilling attention, according to the State Conservation Department record of oil and gas drilling permits issued.

Buckeye drilling, all in more or less well proved territory, accounted for six of the week's 18 permits, and explorations in the new Salem field accounted for five. Three of the remaining seven were for wildcat ventures in Alcona, Allegan and Bay counties. There was one permit for an oil well in Ogemaw County, and three for gas wells, one in Muskegon County and two in Montcalm County.

Leasing activity appears to have taken on new life in Isabella County, home of the extensive Vernon and Sherman Township developments. The past week 28 new oil-gas leases were placed on record in the Mount Pleasant office of Clyde V. Showalter, Isabella registrar of deeds. Most of them were recorded by Sun Oil Co. and were concentrated principally in Deerfield, Coldwater and Nottawa townships. Mr. Showalter predicts a continuance of the pickup in leasing activity in Isabella, reporting he has been warned to be ready to handle a large volume of new leases throughout the county, indicating a move for more thorough investigation of the county's oil possibilities.

"Ebulliometry"

A book of particular value to those who are investigating the distillation characteristics of the petroleum hydrocarbons, and written by W. Swietoslawski, has been published under the title "Ebulliometry." This book of 204 pages, with 52 illustrations, contains extensive descriptions of the technique and apparatus required for the determination of exact boiling points. The principles of distillation and condensation, so important in the design of towers, are well illustrated and explained.

Some of the subjects discussed include thermal decomposition, solubilities, extent of adsorption on surfaces, calibration of thermometers, deviations from physical laws, and many other phenomena involved in the purification of liquids.

"Ebulliometry" may be purchased through the Book Department of The Oil and Gas Journal at the regular established price of $3, express prepaid (shipping charges extra to points outside the United States). A copy of this book will be forwarded promptly upon receipt of check or money order for the proper sum. Where no payment accompanies the order the book will be sent express c.o.d.

North Louisiana, Arkansas

SIX IMPORTANT EXTENSIONS RECORDED IN THREE STATES

By MITCHELL TUCKER

SHREVEPORT, La., Aug. 23.—Important extensions to the Schuler field of Union County, Arkansas; in both the Arkansas and Texas portions of the Rodessa field; in the Cotton Valley and Lisbon fields of northern Louisiana; and in the Joaquin gas-distillate field of Shelby County, Texas, were made or in the process of completion during the past week.

RODESSA—ARKANSAS

Three completions were made on the Arkansas side of the tri-state Rodessa field, bringing total producers there to five, having a total daily average production of 2,390 bbls. There are no proration restrictions upon wells in this portion of the field. Five other wells are in the testing stage nearby and should be on production next week.

F. W. Burford No. 1-B Gerald, NE section 15-20-28, flowed 231 bbls. in eight hours through half-inch tubing choke after being given a 4,000-gallon acid charge, total depth 6,050 feet.

F. W. Burford No. 1 Easton, SW E half SW SE section 11-20-28, flowed 288 bbls. in 17 hours through three-fourths inch tubing choke, total depth 6,060 feet.

William Monroe Layton No. 1 Terry, NW corner of section 14-20-28, flowed at the rate of 40 bbls. hourly through three-fourths inch tubing choke from saturated Mitchell sand 6,002-09 feet and porous and saturated lower Gloyd from 6,020 to 6,037 feet, casing pressure 500 pounds, total depth 6,058 feet.

RODESSA—LOUISIANA

After Rodessa's hope for deeper production in the Lower Marine beds of the Trinity, or in the upper section of the Permian lime, were seriously discounted by R. W. Norton No. 1 Payne, SE SE section 27-23-16, which drilled to a total depth of 11,486 feet in Permian salt without finding commercial oil or gas production, the well has been plugged back to a total depth of 5,980 feet and casing perforated opposite the Young gas sand in the Lower Glen Rose and will be completed as a gasser at this level.

Total oil producers on the Louisiana side of the Rodessa field was raised to 401 through the completion of R. W. Norton No. 13 Starke, NW corner section 17-23-16, flowing 12 bbls. hourly through quarter-inch tubing choke, total depth 6,000 feet.

RODESSA—TEXAS

Cass County

Three routine completions were made last week in the proven portion of Rodessa, Cass County, Texas. R. W. Norton No. 4 Davis, H. Holbert Survey, flowed 10 bbls. hourly through quarter-inch tubing choke, total depth 5,980 feet. No. 8 Davis, same survey, flowed 178 bbls. in 24 hours, total depth 6,067 feet. United Production Co. No. 2 Baugus Unit, D. Rambo Survey, flowed 18 bbls. hourly through half-inch tubing choke, total depth 6,012 feet.

Marion County

Situated at a point presumed to be the flank of the Lodi structure along the Rodessa fault system, about 2 miles northeast of Lodi production, and about 5 miles southwest of Rodessa production, Arkansas-Louisiana Gas Co. No. 1 J. P. Fant, L. P. Cadenhead Survey, is the center of attention while testing. A good producer here would do much to close the gap throughout the 12-mile extension area southwest from Rodessa production through Cass and Marion counties. Porous and saturated lime was cored from 6,178-83 feet and medium porous lime from 6,183-88 feet. The 7-inch casing has been set at 6,128 feet, and preparations are being made to test this important well.

About one-half mile northeast of production in the Lodi sector, Arkansas-Louisiana Gas Co. No. 1 Emma Ford, A. D. S. Coy Survey, drilled the saturated Henderson sand from 6,035 to 6,053 feet and topped the Gloyd at 6,053 feet, and is showing itself as a producer and an extension to this area.

LOUISIANA

Bienville Parish

Upon the northeastern flank of the Union Church gas-distillate field discovered last year, Lide & Greer and others No. 2 Davis, NW NE section 12-16-5w, made a drill stem test from 7,265 to 7,285 feet in the Upper Travis Peak and obtained salt water only. All upper beds have tested dry. Schlumberger survey was made and operations suspended, preparatory to abandonment, total depth 7,355 feet. No. 2 Davis is an offset to No. 1, completed as a 75,000,000-foot wet gas well in the Lower Glen Rose.

Caddo Parish

Prairie River Syndicate No. 1 Hutchinson, SW NW section 15-15-12, important wildcat near Caspania, topped the Lower Marine at 8,380 feet and continues to explore this possible producing section at 8,595 feet.

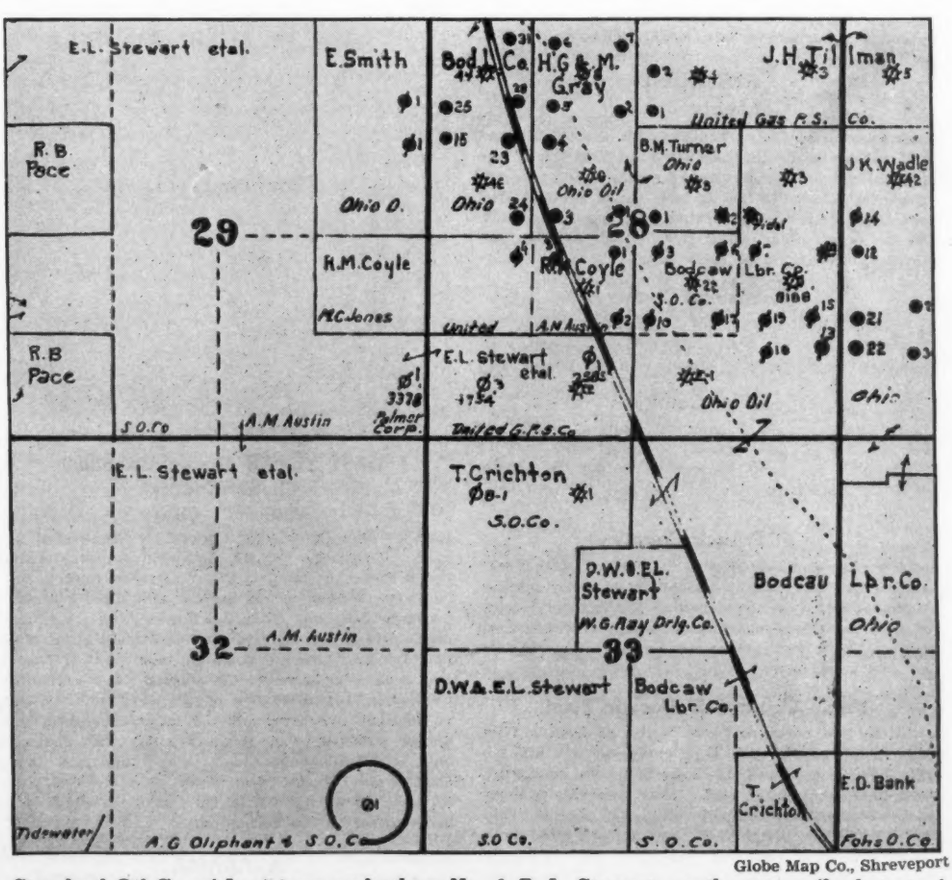
In the Caddo-Pine Island area two completions were made last week. Caltexo Oil & Gas Co. No. 3 Scott, SW corner section 5-16-16, pumped 20 bbls. daily, total depth 2,454 feet. Frank Perkins No. 2 Stiles, SW NE SW section 33-21-16, pumped 14 bbls. daily from the Nacatoch sand, total depth 963 feet.

DeSoto Parish

Tests on all sides of Pullman Oil Co.'s newly opened Grogan field of DeSoto Parish have proven dry, indicating possibly a lenticular streak or pocket of "pay." Kennedy & Bridewell No. 1 Redding, SE NE section 35-11-11, has been abandoned as dry, total depth 2,962 feet. Lyons & Neely No. 1 J. P. Brown, section 16-10-11, a southwest offset, found the Paluxy dry and has been abandoned at 2,923 feet.

Claiborne Parish

Shreveport Oil & Gas Co. (J. R. Bevill and others) No. 1 Edward, NE section 16-20-5w, extension well about midway between Lisbon and Sugar Creek oil fields, has given a rather impressive performance over the last week. After introducing a 5,000-gallon acid charge, at varying intervals, the well made several good flows, gauging at times as high as 40 to 50 bbls. hourly of formation oil, before it would die. Arrangements are being made to reacidize in an effort to clean the sand face and open up the tight formation. Gravity of this oil tests about 30 degrees A.P.I., corrected, and corresponds more closely to the Sugar Creek oil than Lisbon. The depth from which production was found in the Pettit, 5,438 feet, also



Globe Map Co., Shreveport

Standard Oil Co. of Louisiana and others No. 1 E. L. Stewart, southwestern flank test of deep sands in the Cotton Valley field of Webster Parish, Louisiana. Casing has been set here at 8,681 feet preparatory to testing

corresponds more closely to the Sugar Creek level, and this extension may prove an extension to the latter field rather than Lisbon as first reported.

Total producing wells at Lisbon now number 70, following the completion of two new producers last week. Magnolia Petroleum Co. No. 3 H. E. Patton, W half SW SW section 36-21-5, flowed 22 bbls. hourly, total depth 5,288 feet. W. F. Lacey and others No. 1 Laura Caruthers, W half NW NE section 6-20-4, flowed 35 bbls hourly, total depth 5,264 feet.

Sabine Parish

Kirk-Green-Way, Inc., No. 1 Whitney Corp., NW NE section 8-9-13, important deep test on the northern flank of the shallow Converse oil field, has been plugged back from its total depth of 8,510 feet for testings of upper levels. Tests at 5,370 feet in basal Glen Rose yielded salt water only. The hole has been plugged back to 5,170 feet, near top of the 9⅝-inch casing, and preparations are being made to run the stratigraph.

Webster Parish

The deep Bodcaw sand level at Cotton Valley field again becomes the center of interest, as Standard Oil Co. of Louisiana No. 1 E. L. Stewart, SE corner of section 32-21-10, 2-mile extension from gas-distillate production in the main part of the field, indicated itself as a producer in that horizon. At a total depth of 8,700 feet, 7-inch casing has been set 19 feet off bottom, or at 8,681 feet, preparatory to testing. Unconfirmed reports state that the Bodcaw sand was topped at 8,593 feet and 38 feet of saturated gas-distillate sand was cored to 8,631 feet. The significant fact regarding this report is that, even though No. 1 Stewart has consistently checked about 400 feet lower on all important markers to total depth, it is still showing saturation, and an absence of salt water. Should production be developed at this location, which is about 1½ miles outside of shallow production in upper sands, it will be an exception to the general rule that upper sands on anticlinal structures usually cover a wider area than deeper horizons on the same structure.

Woodley Petroleum Co. completed No. 2-A L. C Cox, SW NE section 22-21-10, in the Bodcaw sand in the center of the field, flowing 539 bbls. of distillate and 5,000,000 feet of gas through five-sixteenths inch tubing choke, casing pressure 2,600 pounds, tubing pressure 2,380 pounds, total depth 8,288 feet.

ARKANSAS

Columbia County

Standard Oil Co. of Louisiana No. 1 J. P. McKean, SW section 8-16s-22w, deep wildcat test on a geophysically mapped structure, made drill stem test from 4,441 to 4,488 feet in beds of Lower Glen Rose age, and after holding testing tool open 12 minutes no shows of oil or water were noted. Drilling continues in red shale at 4,488 feet.

Hempstead County

Birdwell and others No. 1 Duckett, SW NW SW section 24-13-24, has been abandoned at 730 feet, without reaching its reported objective in the Travis Peak.

Miller County

Odell Hinson No. 1 Montant Realty Co., NW NW section 3-17-28, once closely watched test east of Texarkana, has been abandoned as dry at a total depth of 5,235 feet, after being shut down for several months.

St. Francis County

Manning & Martin, Inc., No. 1 R. C. Gregg, NW section 20-5n-5e, wildcat test about 40 miles west of Memphis, has been abandoned as dry at a total depth of 3,540 feet. A porous zone of sand was logged from 3,472 to 3,499 feet, but salt water only was obtained on drill stem test.

Union County—El Dorado Field

Along the northern flank of the El Dorado field, Sklar Oil Corp. No. 1 O. G. Murphy, SE NW SW section 24-17-16, pumped 15 bbls. daily on completion test, total depth 2,148 feet. Along the eastern flank, the same operators completed No. 1 W. J. Fitzgerald, SW NW SW section 8-18-15, pumping 10 bbls. daily, total depth 2,140 feet.

Union County—Schuler

Five new producers and one dry hole were completed in the deep Schuler field of Union County last week, bringing the total number of producing wells to 13, and the daily average production to 7,900 bbls. The center of attention is upon the two wells in this field now drilling to the Permian lime zone at about 7,500 feet for a test of this horizon, hoping that if this level is productive it will be more uniform and consistent than the lenticular beds of Lower Marine Trinity from which present production is being obtained.

E. M. Jones and others No. 1-A Murphy Land Co., NW NE NE section 19-18-17, about one-half mile south of production flowed 687 bbls. daily on initial test, with 10 per cent salt water, through three-fourths inch tubing choke, tubing pressure 480 pounds, gas 800,000 feet, total depth 6,351 feet, casing perforated from 5,975-90 and 5,892-5,903 feet.

As an offset to the above mentioned well, Lion Oil Refining Co. No. 1-A M. D. Justiss, NE NW NE section 19-18-17, flowed 226 bbls. in five hours through three-eighths inch tubing choke, total depth 6,015 feet.

In the more proven area, Lion Oil Refining Co. No. 3-A Edna Morgan, SE Lot 1, section 18-18-17, flowed 1,255 bbls. daily through half-inch tubing choke, total depth 6,142 feet.

Phillips Petroleum Co. No. 1 M. Justiss, Lot 6, section 18-18-17, flowed 350 bbls. oil and 35 bbls. salt water on initial test through five-eighths inch tubing choke, total depth 6,142 feet.

Phillips Petroleum Co. No. 2 T. P. Marks, NE Lot 2, section 18-18-17, flowed 427 bbls. oil, 14 per cent salt water, through five-eighths inch tubing choke, total depth 6,087 feet.

E. M. Jones and others No. 1 Katherine Gallagher, Lot 4, section 19-18-17, has been plugged and abandoned as dry, 5,929 feet total depth. This location is along the western edge of the drilling activity.

Estimated Daily Production

Estimated daily gross production all companies week ending August 20, 1937:

NORTH LOUISIANA

Bellevue	740
Caddo light	3,795
Caddo heavy	2,695
Converse	705
Cotton Valley heavy	125
Cotton Valley light	*3,165
DeSoto and Red River	1,525
Elm Grove	395
Haynesville	3,005
Holly	120
Homer	2.450
Lisbon	12,555
Pleasant Hill	115
Rodessa	50,645
Sarepta-Carterville	305
Sligo	395
Sugar Creek	480
Urania	2,840
Zwolle	755
Total	86,800

SOUTH ARKANSAS

Champagnolle	1,350
El Dorado	1,980
Lisbon	285
Miller County	405
Nevada	755
Schuler	7,000
Smackover light	2,140
Smackover heavy	17,175
Stephens	590
Troy	570
Urbana	1,220
Total	33,560

Texas side of Rodessa field, 38,575 bbls. daily.
Arkansas side of Rodessa field, 2,190 bbls. daily.

*2,715 bbls. is distillate.

EAST TEXAS (Border Counties)

Shelby County

The third gas-distillate producer for the Joaquin field of northern Shelby County was completed last week. Portex Oil Co. (H. A. Stebbinger and others) No. 3 Pickering Lumber Co., A. Hanson Survey, tested 75,000,000 feet of gas per day and about 5 bbls. of distillate per hour from the Lower Glen Rose, total depth 5,058 feet, with casing perforated from 5,048 to 5,054 feet. Recent potential tests run on Nos. 1 and 2 Pickering Lumber Co. showed No. 1 capable of producing 110,000,000 feet of gas daily with 50 bbls. of distillate per hour, and the latter capable of producing 46,000,000 feet of gas per day with about 20 bbls. of distillate per hour. Plans are now being worked out for the construction of a gasoline plant in this area by the Portex Oil Co. Residue gas is to be returned to the formation.

ALABAMA

Choctaw County

Joe Modisett and others No. 1 McCorvey, section 20-9n-2w, topped the Chalk at 1,865 feet, or about 140 feet higher than other deep wells in this vicinity, and is being watched closely as it continues in this formation at 2,155 feet. Two good gas showings were reported, one at 830 feet and the other at 1,300 feet at this location, which is on the crest of the Hatchitigbee anticline.

FLORIDA

William G. Blanchard of Coral Gables, Fla., reports that he and associates have assembled a block comprising over 350,000 acres centering around Cape Sable, Monroe County, for possible later exploration.

MISSISSIPPI

According to recent release by Henry N. Toler, state oil and gas supervisor of Mississippi, a total of 65,396,645,000 feet of natural gas has been withdrawn from the Jackson gas dome since its discovery in 1930. At the present time there are a total of 131 producers in the field. Production for the first six months of 1937 was 7,000,000,000 feet from the reservoir. Pressure has declined from 1,010 pounds to 922 pounds at the present time, and remaining reserves at Jackson are estimated at about 130,000,000,000 feet.

Bolivar County

Phillips Petroleum Co. No. 1 Perthshire, section 2-24n-7w, closely watched wildcat test being drilled upon a seismograph high, went out of the red beds of Lower Cretaceous at about 5,400 feet, and is now drilling below 5,650 feet in beds of Paleozoic age.

George County

Cleve Love and others No. 1 J. J. Newman Lumber Co., section 9-1s-8w, has been abandoned at 4,692 feet after unsuccessful attempts to sidetrack stuck drill pipe.

Hinds County

State of Mississippi No. 6 fee, section 26-6n-1e, on the flank of the Jackson gas dome has been abandoned as dry, total depth 2,524 feet.

Wilkinson County

A. B. Taylor and others No. 1 Mississippi-Wisconsin Timber & Land Co., section 34-4n-1w, has been abandoned as dry, total depth 5,559 feet.

Oklahoma Fields

(Continued from Page 100)

tion 31-6n-9w, an old well drilled deeper, had sands at 3,345 feet and 3,401 feet, total depth 3,406 feet, and was recompleted as a 7-bbl. pumper.

Wildcat Completions

Neff-Godfrey No. 1 Chapman, SW SE SW section 36-4s-4e, wildcat in Marshall County, was dry and abandoned at 3,009 feet, total depth, in shale.

C. F. Dillingham No. 1 Evans, NW NW SW section 12-1s-3w, Carter County wildcat, was abandoned in shale at 2,705 feet, total depth.

J. A. Wolf No. 1 Castinus, SW SW SW SE section 30-4n-11w, wildcat in Comanche County, was dry and abandoned at 115 feet, total depth.

Oklahoma District Oil Co. No. 1 Beeler, NE NE SW section 7-7-14, Pittsburg County wildcat, topped Union Valley formation at 4,943 feet, Cromwell sand 4,968 feet, and was temporarily abandoned at 5,165 feet, total depth.

Freeland and others No. 1 Woods, SE SE SW section 28-17-1e, wildcat in Logan County, was an abandoned location.

Other First Reports

Amerada Petroleum Corp. and others No. 1 Lador B, NE NE SW section 10-12-5e, Lincoln County, set 11-inch casing at 225 feet.

J. W. Nicks No. 1 Cox, NE NE NW section 21-9-9, Hughes County, was a rig.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 2 Cully B, NE NW SW section 12-5n-7, Seminole County, was a location.

J. O. Hayes and others No. 2 Durkee, SW SE SW section 21-10-11, Okfuskee County, had dug cellar and pits.

Magnetic Storm

Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey report a magnetic storm began August 21 at 9 p.m. and ended August 23 at 8 a.m. Central Standard time.

Kansas Developments

By DAL DALRYMPLE

FIND OIL IN PRATT COUNTY; EXTEND TRAPP WEST, SOUTH

The first oil pool in Pratt County apparently had been discovered at the week-end to feature field activity in Kansas the past week. Opening of other producing areas and extensions of several pools were recorded in the last seven-day period, which also saw several new wildcats started.

Opening of the Pratt County pool was indicated at Atlantic Refining Co. and associates No. 1 Runyon, SW NW NE section 11-27-13w, about 4½ miles northeast of the town of Pratt. It was bottomed at 4,311 feet in Simpson sand, and was unofficially reported to have flowed 102 bbls. of oil through tubing in four hours, after acidizing two times. Production was from Simpson Dolomite at 4,292-99 feet. Cities Service Oil Co. and Skelly Oil Co. are associated with the Atlantic company in this test.

A new producing area east of the Hauschild pool in southern Rice County was opened at Kirk D. Holland and others No. 1 Brothers, SE cor. section 12-21-7w. It found Conglomerate at 3,473-76 feet, total depth, had a hole full of oil and was slopping over. Casing was underreamed from 3,233 feet to 3,456 feet, after the hole had caved badly, but some 20 feet of cavings remained in the hole. The showing is to be tested, but the well may be deepened to Siliceous lime before completing. It is about 1¼ miles east of the Hauschild area.

The new Stafford County discovery well, Newman & Winemiller No. 1 Sittner, NE cor. section 33-21-12w, 6 miles southeast of the Gates pool and 5 miles north of Hudson, flowed 385 bbls. of oil in three hours on initial test. It topped Kansas City-Lansing lime pay at 3,278 feet, total depth 3,414 feet. O. E. Torrey and Harry Feaster of Hutchinson are interested in the test, which is a Stanolind Oil & Gas Co. farmout.

Estimated Daily Production

Estimated daily production of Kansas for the week ending August 21, and for the preceding week, was as follows:

	Barrels	
	Aug. 21	Aug. 14
Oxford City	1,575	1,550
Burrton	14,475	14,550
Ritz-Canton	5,875	5,975
Graber	2,475	3,425
Hollow-Nikkel	2,825	2,850
Lerado	2,175	1,975
Voshell	2,375	2,350
Wellington	3,250	3,225
Ellsworth County:		
Lorraine	4,435	5,320
Other pools	1,285	1,330
Rice-Barton counties:		
Bloomer	5,225	6,175
Chase	7,850	9,050
Geneseo	2,575	2,550
Raymond	1,950	1,925
Silica	18,875	19,650
Keesling	1,625	1,750
Hauschild	400	1,025
Miscellaneous Rice	9,570	11,460
Miscellaneous Barton	5,190	6,120
Russell County:		
Fairport	1,705	1,910
Gorham	1,605	2,010
Russell	1,720	1,965
Sullivan	9,720	9,480
Trapp	10,520	12,130
Miscellaneous Russell	8,025	6,995
Sedgwick County:		
Valley Center	1,065	1,045
Miscellaneous	2,950	2,995
Ellis County:		
Bemis	3,700	6,050
Miscellaneous	2,565	2,690
Kingman County	560	575
Stafford County	3,405	3,955
Greenwood County	9,975	10,100
Butler County	15,310	15,780
Other fields	27,220	26,115
Total Kansas	194,050	206,050

The Otis Sector

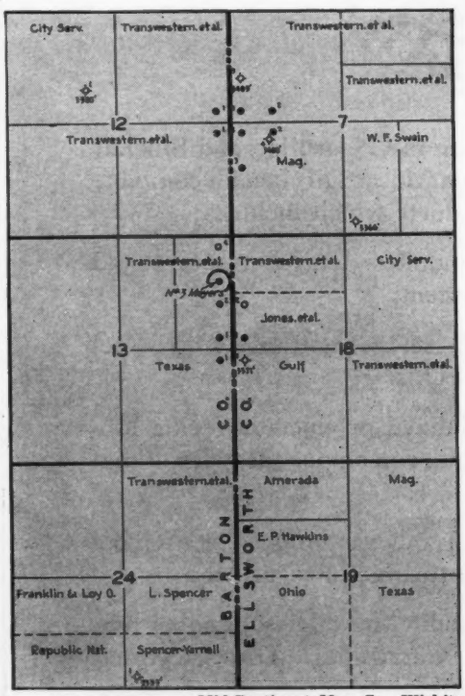
Carter Oil Co. No. 1 Hergert, CNL NE SE section 26-18-16w, was credited with potential of 1,428 bbls. of oil daily after flowing 524 bbls. in eight hours. It is about one-half mile south of the Otis field, in eastern Rush County.

South of Great Bend

Max Cohen and others No. 1 Luce, SE SE SW section 21-20-13w, wildcat south of Great Bend in Barton County and northeast of the Hiss pool, tested a showing of oil in the lower Kansas City lime series with unsatisfactory results, so operators were drilling ahead below 3,438 feet, seeking Siliceous lime.

Sperling Extensioner

Derby Oil Co. No. 1 Lehmann, SW SW NW section 13-22-2w, which extended Hunton lime producing area of the Sperling pool in Harvey County one-fourth mile northward, was credited with potential of 1,635



Mid-Continent Map Co., Wichita

South Breford pool of Barton and Ellsworth counties was given a new producing horizon when Transwestern Oil Co. found oil in Kansas City lime at No. 3 Meyers, SE NE NE section 13-17-11w. Other South Breford production is from Siliceous lime

bbls. of oil after flowing 272½ bbls. in the first four-hour test and 282½ bbls. in the second four-hour test. Production was from Hunton lime at 3,312 feet, total depth. It is two locations north of gas production in the pool.

New Ellis Oil Area

Billings and others No. 1 Smith, SE SE NW section 14-12-16w, wildcat between the new Froelich area of Ellis County and the Fairport pool of Russell County, was bottomed at 3,370 feet in Siliceous lime and made potential of 591 bbls. of oil, after acidizing.

Extension of the Bemis pool, Ellis County, one-fourth mile eastward appeared imminent at Blackwell Oil & Gas Co. No. 1 Richmond, SW SE SE section 15-17-11w. It is east of C. H. Lebow and others No. 1 Richmond, which recently extended Bemis one-half mile east. Top of Siliceous lime was 3,396 feet and it was drilled 1 foot in, with samples showing oil saturation. Casing was to be set on top of the lime and standard tools rigged up before drilling in.

Extension at Trapp

Shell Petroleum Corp. No. 1 Batt, SE cor. section 35-15-14w, wildcat 1 mile west of the Trapp pool, southern Russell County, swabbed 61 bbls. of oil in two hours from Siliceous lime at 3,320 feet, total depth. A fishing job resulted when swab was lost in the hole, delaying a further test. Operators were expected to acidize after recovering the swab.

At the southeast edge of the pool in Russell County, Skelly Oil Co. No. 6 Neidens, SW SE section 32-15-13w, was showing as a fair producer although offsetting a dry hole. It swabbed 342 bbls. of oil in 14 hours without lowering the oil level below 300 feet from top of the hole. It was producing from Siliceous lime at 3,298½ feet.

Earlier in the week the Trapp pool was extended 1½ miles south on the Barton County side at Phillips Petroleum Co. No. 1 McClanahan, NE NE SE section 7-16-13w. It swabbed 375 bbls. of oil in six hours from Siliceous lime, total depth 3,377 feet. This Trapp extensioner is northwest of the Deutsch pool of northern Barton County.

The Bloomer Area

Extension of the Bloomer pool of Barton and Ellsworth counties into northwestern Rice County was indicated at Bridgeport Machine Co. and others No. 1 Habiger, NW SW NW section 5-18-10w. It was showing for a producer from Lansing lime topped at 2,950 feet, total depth 3,005 feet. It was shut in for tankage. This well may be a connecting link between the Bloomer field and the Stumps pool to the southeast in Rice County. Production in the Stumps pool is from Siliceous lime, while the Bloomer area has production in both Lansing and Siliceous horizons.

New Wildcats Started

Wildcat exploration continues right merrily in Kansas, there having been little, if any, let up in this phase of oil activity in the Sunflower state during the summer. Several new outpost tests were announced the past week.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. were moving in tools at No. 1 Nellie Belt, NE NE SW section 13-20-16w, wildcat northwest of Pawnee Rock in Pawnee County. It is 1½ miles northeast of the only pool in Pawnee County.

Another attempt to uncover production in Osborne County is to be made by F. E. Fullerton & Son at No. 1 Mowery, NE SE SW section 27-10-12w, 4 miles northeast of Luray. Location is about 24 miles northeast of production in the Fairport area, Russell County. Operators have spudded and shut down.

In Phillips County, C. W. Davidson and associates had spudded at No. 1 Elliff, SE NE NE section 35-5-18w, northwest of the Faubin pool of Rooks County. Location was thought to be at the apex of the Barton Arch.

Trego County is to get a new wildcat test at Twin Drilling Co. No. 1 Lawson, SW SW NW section 7-14-22w, about 12 miles southeast of Wakeeney. Thurman Hill, assistant general counsel of the Treasury Department at Washington and formerly of Kansas, J. Henry Rubin of New York and associates are interested in the test.

Location has been announced for Boyle & Grossman and others No. 1 Diener, SE NE section 35-19-1w,

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SINCLAIR

wildcat 3 miles southeast of Canton in McPherson County.

Two of the new wildcats are in Reno County. Three miles south of the Lerado pool work has been started at Albert Jones and others No. 1 Shepherd, NW cor. section 22-26-9w. Cohen, Wagoner & Bruner No. 1 Durand, SE SE NW section 3-23-5w, is a derrick. Location of this wildcat is on a 3,000-acre block.

In Sedgwick County, E. L. Fulton and others No. 1 Fulton, NE SE section 35-28-1e, 9 miles southeast of Wichita, was shut down for repairs. This wildcat is 4 miles from the Robbins pool.

In eastern Kansas, Becker Brothers No. 1 Venn, NW SW SE section 22-25-14, was moving in material. This outpost is in the old Batesville gas area of Woodson County.

In the southwestern Kansas gas region United Production Co. No. 1 Reed, SW cor. section 1-30-35w, was a wildcat location in the Satanta area of Grant County.

Potential Tests

Producers in six Kansas pools have been notified by E. G. Dahlgren, state conservation director, that eight-hour potential tests will be taken about August 30. Tests are to be taken in the David pool of Cowley County, Greenwich pool of Sedgwick County, Chindberg and Johnson pools of McPherson County, Halstead pool of Harvey County and Welch pool of Rice County. New wells with potentials taken under the new order recently issued will not be required to take the August 30 field tests.

The Corporation Commission ordered that six wells in the Hauschild pool, Rice County, be shut in until accumulated allowables for the wells equal their production totals. The commission held that two wells on the Derby-Hauschild lease had total overage of 17,182 bbls.; two wells on the Derby-Theede lease had total overage of 7,753 bbls., and that two wells on the McPherson-Yaple lease had total overage of 7,165 bbls. The commission ordered that potentials of wells in the Hauschild pool be established according to physical potential tests taken June 23, and thereafter to August 5.

Big Play at Hugoton

Operators in the big Hugoton gas district of southwestern Kansas have started an extensive program to increase reserves and increase production to meet higher demands in northern markets. About 45 wells have been scheduled for completion before winter. The Panhandle Eastern Pipe Line Co., the Parrish interests, Columbian Fuel Co. and United Production Co. are drilling or soon will start drilling several wells each. The play extends over much of Stevens, Grant and Morton counties, with the Oklahoma Panhandle sector of Hugoton field getting little attention at the present. Hugoton gas is distributed over several northern states, with the Detroit market providing the largest outlet. Production in the area generally is found at arounti 2,600 to 2,700 feet, with production ranging from 5,000,000 to 15,000,000 feet daily.

State to Let Lease

The Fort Hays State College and Experiment Station at Hays, Kans., will receive bids for oil and gas leases on 3,200 acres of land owned by the college on September 11, J. A. Mermis, business manager, has announced. Development of the land, on the abandoned Fort Hays military reservation, was authorized in a special law passed by the 1937 legislature. The state land is from 4 to 6 miles north and east of producing areas.

Southeastern Nebraska Wildcats

On a block of leases in southwestern Jefferson County, Nebraska, and Washington County, Kansas, a wildcat is drilling below 450 feet on a location in SE SE section 31-1n-1e, Jefferson County. The owners are L. R. Page, Ben Gurley and R. M. Rodenberger. Retaining all of the SW quarter of section 31, and the S half NW section 32, and considerable outlying acreage, they sold spreads to six major companies. Leases closest to the well purchased by major operators include N half NE section 31, by Ohio Oil Co.; S half NE section 31, Sinclair Prairie Oil Co.; N half NW section 31, Gulf Oil Corp.; S half NW section 31, Carter Oil Co.; N half SW section 31, Magnolia Petroleum Co.; S half SW section 31, Carter Oil Co.; N half NW section 32, Magnolia Petroleum Co.; N half SW section 32, Gulf Oil Corp.; S half SW section 32, Ohio Oil Co. Over the line in Washington County, Kansas, E half NE section 1-1s-1e, Carter Oil Co.; W half NE section 1, Sinclair Prairie Oil Co.; N half NW section 1, Ohio Oil Co.; S half NW sec-

tion 1, Gulf Oil Corp.; N half SW section 1, Ohio Oil Co.; W half NW section 5, Magnolia Petroleum Co.

In Richardson County in the extreme southeastern part of Nebraska is another wildcat, being drilled by the Arab Petroleum Co. (Robert Garland and others) in SE SE section 9-1n-14e, west of Falls City, Carter Oil Co. and Magnolia Petroleum bought leases in the block. The well was last reported as drilling below 1,500 feet. The block is just north of Brown County, Kansas.

Eastern Fields

(Continued from Page 88)

in Oriskany sand at 4,991 feet and it gauges 13,105,000 feet a day. In this district, Godfrey L. Cabot, Inc., completed a test on the Holmes Morton and others lease in the Oriskany sand at 5,152 feet. It is good for 4,900,000 feet a day.

In Elk district, Kanawha County, the Columbian Carbon Co. test on the Mandy Wolfe farm was completed in Oriskany sand at 5,156 feet. It is a gas well gauging 8,684,000 feet a day with a shut-in pressure of 1,650 pounds.

In Malden district, the South Penn Oil Co. is down 4,750 feet in the No. 4 Kate Scott. The United Fuel Gas Co. is drilling at 4,190 feet on the Georges Creek Land & Mining Co. leases. Godfrey L. Cabot, Inc., is down 4,375 feet in No. 6 Nellie B. Tompkins and has started drilling No. 7. This operator is also drilling at 1,455 feet on the Roane Land Co. lease. The Owens Illinois Glass Co. has reached 4,971 feet on the L. A. Myers tract. The Glenn Oil & Gas Co. is down 1,000 feet in a test on the L. L. Williams farm.

In Union district, Godfrey L. Cabot, Inc., is down 2,200 feet on the C. W. Richardson test. The Mullins Gas Co. is drilling at 1,070 feet on the Sarah S. Dawley farm. The Ajax Gas Co. is drilling at 1,200 feet on the Dunbar Development Co. and rigging up on the L. B. and B. F. Bess farm.

In Poca district 23 wells are drilling at various depth, 8 rigs are standing and there are locations for 15 other wells staked. In Elk district, 17 wells are drilling, 5 rigs are up and there are locations for 5 others.

Outside Deep Tests

In Wirt County, on the Burning Springs anticline in Burning Springs district, the Carnegie Natural Gas Co. shot the Oriskany sand in the test on the W. C. Patterson farm and it did not improve the gas and oil showing at the top of the sand at 4,852 feet. The well will be plugged back to produce the shale oil at 2,200-2,500 feet.

In Jackson County, the United Carbon Co. is down 4,490 feet and 4,480 feet in the two tests drilling on the Elizabeth Ward Perkins farm in Washington district.

In Wood County, the Belmont Quadrangle Co. is down 780 feet in the test on the C. D. White farm in Steel district. In Tucker district, Wirt County, the Carnegie Natural Gas Co. is pulling the 8-inch casing and has drilled by the tools lost at 1,090 feet.

Southwest Texas Fields

(Continued from Page 91)

present is the Sandia field, where two tests are drilling, and others are projected. West Premont and Bentonville are inactive.

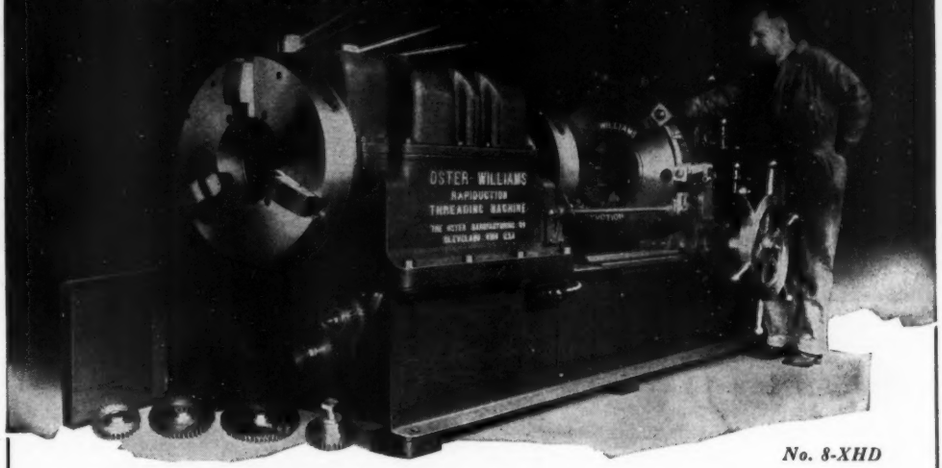
Further disappointment is seen in the Kingsville field of Kleberg County, as another test failed to find production. The Humble Oil & Refining Co. abandoned No. 1 Kleberg at a total depth of 4,010 feet. Several abandonments have spiked efforts to find production in the Kingsville area recently.

In the Laredo district, the most active field, North Sweden still looks to the Woodley Petroleum Co. No. 1 Parr for a mile eastward extension. The test made small amounts of salt water on tests in the past week, but the salt water content diminished until no show of it was seen in the latest test made. After going dead the well was rocked in late in the past week, flowing 6 bbls. of oil per hour on a 15/64-inch choke, with casing pressure of 945 pounds and tubing pressure of 125 pounds. Drilling mud tested about 2 per cent of the fluid, and salt water was absent. Fifteen rigs are active in the field and four new wells were brought into production during the past week.

Also in Duval County two other fields received set-backs. The Loma Vista field was defined by failure of the Wellington Oil Co. No. 4-A Welder, and a west outpost of the Hoffman field, Humble Oil & Refining Co. No. 1 Casas, failed to find production and was abandoned at 3,018 feet.

RAPIDUCTION

BUCKING UP and THREADING MACHINE



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Fitts District Sets Pace in Activity

By DAL DALRYMPLE

The Fitts district of southeastern Pontotoc County, the most active sector in Oklahoma today, has been setting the pace in field work in the state since the excitement in the Capitol Extension area at Oklahoma City subsided several months ago and will continue to be the busiest area during the remainder of this year—always barring the discovery of a new pool of major proportions, with a resultant boom.

Drilling operations in the Fitts field proper have declined somewhat in recent weeks, but have been offset by increased activity resulting from extensions and discoveries in the Muse and Jesse areas to the south and east. Recent discoveries in the Roodhouse sector northwest of Fitts, near Centrahoma in Coal County, and in the Citra region of southwestern Hughes County, although still of more or less doubtful importance, have served to extend the scope of operations around Fitts and undoubtedly will result in the drilling of several more wells this year and next. In addition, several wildcats are drilling or due to start soon in counties south and southeast of Pontotoc. An important strike at any of them would be a tonic for the oil industry in Oklahoma.

The Fitts field of many producing horizons will continue to be the state's most active area for some time to come. It may have passed its peak in activity, but there yet is much drilling to be done in that phenomenal area. The field has been defined on all sides, with the exception of the Hunton lime horizon. Operators still are getting good Hunton lime producers on the northeast side, and there is no limit yet to Hunton production in that direction. Wells that are drilled too deep in the northeast sector encounter water, but usually are completed as good producers when plugged back to the Hunton lime. Many of these Hunton wells probably will have small total recovery, following initial yields of 500 to 1,000 bbls. or better after acidizing, but it is believed they will be very profitable if wells are spaced at wide intervals.

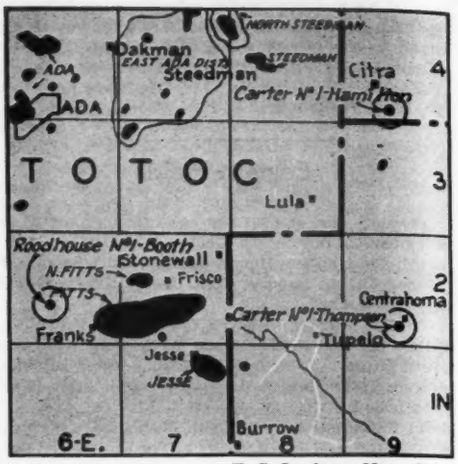
Cromwell Sand Activity

Cromwell sand offers another producing horizon for considerable development in the future. The Cromwell trend seems to cover much of the central section, and is of limited area with inside locations to be drilled. The wells generally are small producers, with pay found around 2,450 to 2,600 feet. Other producing horizons at Fitts, now mostly drilled up, include Gilcrease sand, Bromide lime, two Bromide sands, McLish first and second pays, Wilcox sand and Oil Creek sand.

So there yet is much work to be done in the Fitts field, what with drilling of Cromwell sand wells, continued expansion of the Hunton lime zone, possibly some additional drilling to other horizons, and much deepening, plugging back and reconditioning of old wells.

Major development of the future, however, probably will be in adjacent areas and nearby pools, right now notably the Muse and Jesse sectors.

The South Fitts pool, south of the fault at Fitts, was opened in April by E. H. Moore and associates at No. 1 Muse, SW NE SE section 33-2n-7, with a small well completed at plugged-back depth of 4,570 feet. That inaugurated a drilling campaign, with the play extending generally to the southeast in the direction of Jesse. Considerable development between the two areas is under way, with prospects that Hunton lime wells may connect North Jesse and Muse. Deep producing horizons in this midway sector, from Viola lime down, have been fairly well condemned, but here, as at the northeast side of the main Fitts field, there has been no definition of Hunton production. Trends extending to the northeast as well as to the northwest from Jesse, in Pontotoc County, are being played and many tests will be drilled next year. The Coal County extension area south and east of Jesse also is due for considerable development.



E. C. Jacobson, Maps, Tulsa

The Fitts district of southern Pontotoc County and neighboring sectors of Coal and Hughes counties is the most active area in Oklahoma. Recent discoveries are indicated

Develop Shallow Pay

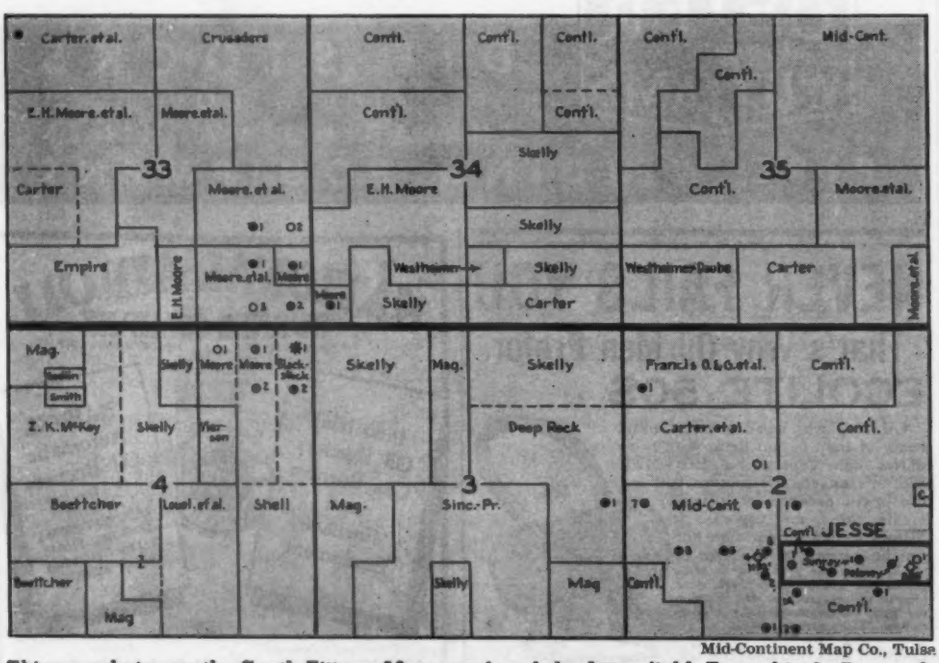
The value of upper and shallow pay zones in the general Fitts-Jesse district is being proved as they are further explored. Decline of deeper and medium depth producing formations in the district is and will continue to result in more exploratory work in the upper zones.

The Centrahoma sector in Coal County, east of Fitts, undoubtedly will share in development work of the near future. The discovery well at Centrahoma, Carter Oil Co. and associates No. 1 Thompson, C S half NE NW section 34-2n-9e, recently was officially completed after having been shut down for several months. Originally bottomed at 7,126 feet, it was plugged back to 6,330 feet, casing was perforated at 6,140-80 feet and 6,200-6,235 feet, acid was applied and it was completed as a 35-bbl. daily producer, from Viola lime. Prior to completion, it made several head flows.

North of Centrahoma townsite, Carter Oil Co. and others are drilling another wildcat at No. 1 Claytor, C W half NE SW section 27-2n-9e. Phillips Petroleum Co. has a wildcat under way at No. 1 Beck, SE SW SW section 6-1n-9e, southwest of Centrahoma and east of Jesse. Results of these tests will be watched with considerable interest because of the bearing they will have on the southeast play.

The new Roodhouse area northwest of Fitts, in Pontotoc County, is due to contribute its share to the future drilling activity. The discovery well, C. W. Roodhouse and others No. 1 Booth, SE NW SE section 20-2n-6e, had pumping average of 73 bbls. of oil daily on recent tests. Bottomed at 4,966 feet, production was through perforations at

(Continued on Page 121)



Mid-Continent Map Co., Tulsa

This area between the South Fitts or Muse pool and the Jesse field, Township 1n-7e, southeastern Pontotoc County, is due for considerable future activity

California Field Report

By L. P. STOCKMAN

MAKE REQUIREMENTS SEVERE IN LONG BEACH OPERATIONS

LOS ANGELES, Calif., Aug. 23.—Barring some last-minute delay, drilling operations will get under way in the Long Beach section of the Wilmington field of Los Angeles Basin before the close of August. The proposed city ordinance stipulates, among other things, that a permit must be secured from the Board of Harbor Commissioners before construction of any new derrick or other equipment is begun and the location of all derricks and equipment, pipe lines and tanks and other necessary equipment must be indicated on a map prepared by a licensed engineer. The preliminary draft of the ordinance contains an investigation and permit fee of $750 for each well, to be paid by means of a certified or cashier's check, and the posting of a $25,000 bond to force compliance with duly authorized regulations, which, incidentally, provide for the restoration of leases to substantially the condition prevailing at the time of drilling whenever a producing well or a drilling well has been abandoned. Some changes may be made within the next few days on the preliminary draft completed last week, but the board has taken a very definite stand on the matter and shows very little indication of reducing the permit fee for each well or the amount of the indemnity bond.

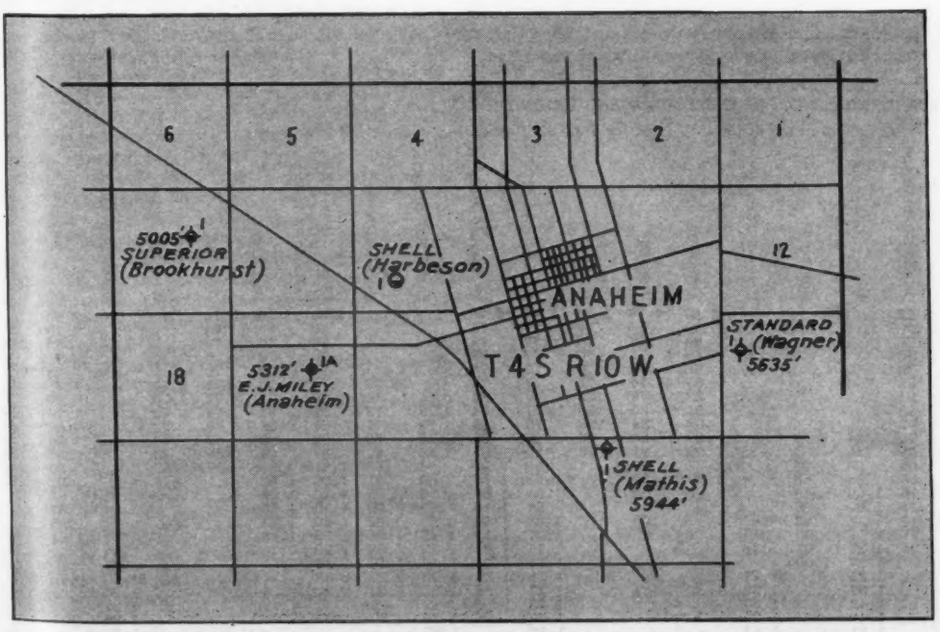
Several operators have been busily engaged building roads and preparing locations for new wells in order to minimize the time between the effective date of the new ordinance and the starting of operations. Union Pacific Railroad, largest holder of undeveloped acreage in the Wilmington field, and General Petroleum Corp., discoverer of the field, have prepared the necessary maps and papers and will be in a position to proceed with active development work in the Long Beach section of the field in the near future. A total of 251 wells have been completed in the Wilmington field and it is believed quite probable that another 75 or 100 wells will be completed before the close of the current year. If the Long Beach section proves as highly productive as anticipated and conforms with the present expectation regarding the areal extent, it is quite probable that 400 wells will be drilled before the conclusion of development work. If deeper drilling proves productive enough, this number may be greatly exceeded. Engineers have started revising upward their preliminary estimates of the probable ultimate production of the field. On the basis of 400 wells, the Wilmington field must produce substantially in excess of 25,000,000 bbls. of crude oil before operators succeed in recovering their initial investment. This estimate is extremely conservative as it was based on a drilling cost of $50,000 per well with a crude oil schedule calling for a minimum price of $1 per barrel. That this estimate is perhaps too conservative is evidenced by the fact that actual drilling costs approximate $60,000 per well and that a substantial part of current production is being sold to buyers below 65 cents per barrel for 18-gravity crude oil.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	August 12		August 5			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Crude oil	.....	.....	60,035	8,576	60,035	.....
Diesel and gas oil	.....	.....	.....	.....	176,726	151,541
Gasoline	.....	.....	128,630	18,376	2,619,449	4,191,165
Kerosene	.....	.....	.....	.....	256,032	888,702
Foreign exports:						
Crude oil	238,731	34,104	176,175	25,168	8,735,482	5,574,978
Fuel oil	172,042	24,577	149,441	21,349	8,865,886	6,272,810
Diesel and gas oil	269,117	38,445	120,096	17,157	4,758,218	3,612,527
Gasoline	168,751	24,107	226,720	32,389	5,115,504	4,499,385
Kerosene	2,668	381	14,686	2,098	1,429,223	962,148
Other unfinished oil	.....	.....	.....	.....	847,290	112,788
Coastwise-domestic:						
Crude oil	251,957	35,994	60,177	8,597	2,697,250	4,089,622
Fuel oil	265,847	37,978	389,498	55,643	9,253,487	5,894,659
Diesel and gas oil	37,642	5,377	63,497	9,071	1,334,933	818,204
Gasoline	248,328	35,475	479,574	68,511	9,570,728	8,046,019
Kerosene	.....	.....	4,448	635	249,333	131,782

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	152,932	.....
Gasoline	.....	.....	.....	.....	25,778	227,419
Asphalt	.....	.....	72,707	10,387	278,026	138,097
Lubricants	.....	.....	9,615	1,374	22,472	34,084
Foreign exports:						
Crude oil	107,404	15,343	89,013	12,716	1,883,746	2,167,979
Fuel oil	58,512	8,359	29,297	4,185	1,321,123	1,773,735
Diesel and gas oil	194,634	27,805	141,090	20,156	2,044,381	1,108,347
Gasoline	267,651	38,236	111,076	15,868	3,265,907	2,347,951
Kerosene	98,880	14,126	86,929	12,418	683,076	459,729
Lubricants	20,136	2,877	47,160	6,737	392,911	203,169
Coastwise-domestic:						
Fuel oil	62,831	8,976	152,444	21,778	3,971,628	4,169,229
Diesel and gas oil	39,036	5,577	17,916	2,559	663,892	479,339
Gasoline	66,736	9,534	181,356	25,908	2,934,772	3,145,661
Kerosene	.....	.....	.....	....	162,675	102,798



Shell Oil Co. has started a wildcat in section 9-14s-10w, Orange County, California, in an area where several dry holes have previously been drilled. Shell No. 1 Mathis, south of Anaheim, was abandoned last year

Wilmington Completions

General Petroleum Corp. in the past week completed five wells in the Wilmington pool with an aggregate initial production of 4,614 bbls. Production was substantially curtailed immediately after completion. No. 8 Terminal, the largest completion recorded during the week, was brought in flowing 1,519 bbls. of clean 19.1-gravity oil daily through a 52/64-inch bean. The bean was reduced to 15/64-inch and production declined to 333 bbls. daily with a pressure of 360 pounds on the tubing and 900 pounds on the casing. No. 8 was bottomed at 3,460 feet and the 8⅝-inch casing, which carried perforations at 2,652-2,918 feet and at 2,998-3,460 feet, was cemented through perforations at 2,652 feet. No. 6 Terminal was brought in flowing 573 bbls. of clean 16.6-gravity oil daily through a 42/64-inch bean from 3,615 feet, with perforations in the 8⅝-inch at 2,657-3,090 feet and at 3,170-3,615 feet. No. 15 Ford, located on property leased from the Ford Motor Co., tanked 623 bbls. of clean 20.1-gravity oil in 24 hours flowing through a 48/64-inch bean from 3,078 feet, subsequently pinched back to 195 bbls. a day by reducing the bean to 14/64-inch. No. 19 Ford flowed 938 bbls. of clean 23.1-gravity oil daily through a 40/64-inch bean, and shows a pressure of 125 pounds on the tubing and 500 pounds on the casing. This new well was bottomed at 3,030 feet and the hole finished with an 8⅝-inch flow string carrying 418 feet of perforated. No. 21 Ford was completed flowing 961 bbls. of exceptionally clean 20.6-gravity oil per day from 3,100 feet. It has 521 feet of perforations opposite the productive horizon. After being cut back from a 40/68-inch bean to a 14/64-inch bean, production was reduced to 220 bbls. daily coincident with an increase in pressure to 300 pounds on the tubing and 900 pounds on the casing.

Additional Completions

Bankline Oil Co., which has five rigs in course of construction and eight additional locations staked, com-

pleted No. 9 P.T.C., pumping 198 bbls. of 16.6-gravity oil daily, cutting 4 per cent. It was bottomed at 3,396 feet and finished with 280 feet of 6⅝-inch liner including 274 feet of perforated. Royalty Service Corp., one of the most aggressive operators in the Wilmington field and which has a number of locations available for work in the Long Beach section of the field, completed No. 5-A Nelson flowing 402 bbls. of clean 14.5-gravity oil daily from 3,050 feet. It has a 13⅜-inch water string cemented at 2,510 feet, and was finished with 576 feet of 9-inch liner including perforations at 2,513-2,855 feet and 2,898-3,050 feet. Selegna Drilling & Production Co. No. 7 Wilmington was brought in flowing 310 bbls. of clean 19.5-gravity oil daily through a 20/64-inch bean. It was bottomed at 3,320 feet and finished with 340 feet of 8⅝-inch liner including 300 feet of perforated landed on bottom. No. 1 Properties, Inc., of Oceanic Oil Co. was completed pumping 198 bbls. of 16.9-gravity oil cutting 1.5 per cent from 3,530 feet. The hole was finished with 283 feet of 6⅝-inch liner including 125 feet of perforated landed at 3,529 feet. No. 3 Wilmington of A. T. Jergins Trust was brought in flowing 240 bbls. of clean 21.1-gravity oil daily through a 16/64-inch bean from 3,460 feet. No. 1 Lakme of F. C. Hall, in the western end of the field, at Lakme and I streets, has been completed flowing 430 bbls. of 16.5-gravity oil cutting 5 per cent from 3,626 feet. This new producer carries perforations at 2,903-3,013 feet, 3,094-3,135 feet, 3,174-3,255 feet and at 3,327-3,626 feet. Crude Oil Drilling Co. No. 1 Martin, at Flint and I streets, has been completed, pumping 172 bbls. of 15.8-gravity oil cutting 5 per cent from 3,406 feet. Two deep tests, No. 18 Ford of General Petroleum Corp. and No. 842-2 Gilmore of Royalty Service Corp., have reached the 5,100-foot level and should hit the pay within a few hundred feet, if they correlate with the log of No. 3 Ford, which was carried down some time ago and tested at several productive intervals.

Kettleman North Dome

In the Kettleman North dome field, which stretches across Fresno and Kings counties, Kettleman North Dome Association is coring ahead in well No. 4-18-J at 10,856 feet and up to the present has logged 141 feet of oil sand, shale and fine, tight gray sand. This well, an outpost located in the extreme western end of the field in section 18-21-17, appears to have definitely proved up rocks of Eocene age as unusually productive. This well, one of the most important tests under way in California at the present time, stands an excellent chance of resulting in substantial production unless some of the formation to be produced carries water. It produced clean oil from the upper part of the formation now being cored and can in any event be completed as a flowing well by plugging back if necessity demands. Kenda started this outpost as a prospect hole, but has, in addition to proving the Eocene productive, extended the outer limits of production. The Temblor was not productive but the Eocene looks exceptionally promising. Kenda successfully completed No. 67-28-J in section 28-21-17 flowing 750 bbls. of clean 37.3-gravity oil and 48,000 feet of natural gas per day. This well was cemented through perforations at 7,406 feet and at 7,528-82 feet and finished at 7,877 feet.

Wildcat Exploration

In the Rio Bravo district of Kern County, Union Oil Co. resumed drilling in No. 1-34 Kern County Land following an unsuccessful production test at 10,254 feet. This wildcat, in section 34-28-25, tested wet below the shoe of the 6⅝-inch water string cemented at 10,245 feet and the company resumed drilling. A core taken at 10,326 feet showed 2 feet of oil sand, but the bit immediately passed into brown shale. In the Wasco district of Kern County, Continental Oil Co. is rotating ahead in No. 2-A Kern County Land at 9,738 feet in a hard brown shale, which shows considerable gas but no oil. No. 1-A Kern County Land, one location south, produced a small quantity of oil and gas from 9,591 feet, at which depth mechanical trouble precluded a satisfactory production test. One additional well, and possibly two, may be required before the trend of the structure is determined. In Tulare County, Standard Oil Co. is drilling ahead in No. 1 Morris at 7,340 feet but this wildcat, in section 36-24-23, has not had any unusual showings. The company is expected to go down below 10,000 feet if necessary as 13⅜-inch casing has been landed at 5,680 feet. Up in the Cantua district of Fresno County, Western Gulf Oil Co. abandoned No. 1 Skelly Estate as a dry hole at 6,578 feet.

Mountain View

In the Mountain View field of Kern County, Hogan Petroleum Co. completed No. 10 Porter Day flowing 998 bbls. of clean 25.3-gravity oil and 350,000 feet of gas per day from 6,015 feet. This well, in section 29-30-29, was finished with 410 feet of 5½-inch liner including perforations at 5,630-5,740 feet, 5,752-5,820 feet and 5,966-90 feet. It was completed flowing through a 33/64-inch bean and shows a pressure of 240 pounds on the tubing and 950 pounds on casing. American Exploration Co. No. 1 Clemens in section 18-30-29 was good for 361 bbls. of 24.5-gravity oil per day upon completion at 4,753 feet. It was finished with 356 feet of 5½-inch liner including 313 feet of 120-mesh landed at 4,745 feet and production was flowing through a 12/64-inch bean. Drilling operations in this field have reached a low ebb although a few new wells are being started from time to time. General Petroleum Corp. has returned to the Arvin section southeast of the Mountain View field and has spudded in a second test in section 27-31-29. The company's first outpost proved unproductive although some oil sand was logged in the bottom of the hole. If production is developed in this area it will mean the discovery of a new field.

Poso Creek Area

In the Mount Poso field, San Joaquin Basin, Ring Oil Co. has completed No. 1 Rogers-Jones pumping 297 bbls of 16.1-gravity oil cutting 2 per cent from 1,725 feet. This well, in the Ring area a few miles north of the northern tip of Mount Poso, picked up the top of the Vedder zone at 1,671 feet and was finished with 87 feet of 6⅝-inch liner including 64 feet of perforated.

In the Round Mountain field of Kern County also located around the eastern rim of the San Joaquin Basin, Honolulu Oil Corp. completed wells in section 18-28-29 and section 20-28-29 pumping 176 bbls. and 25 bbls. per day, respectively. The former was bottomed at 1,795 feet and finished with 55 feet of 7-inch liner including 30 feet of perforated and the latter was bottomed at 1,941 feet and finished with 485 feet of 6⅝-inch liner carrying perforations at 1,472-1,853 feet and at 1,908-41 feet. This company is running two strings of tools in this field and should have No. 22 in section 18-28-29 ready for a production test within another week. Shell Oil Co. completed No. 18 Caldwell in the Round Mountain field but production data was not yet available.

San Joaquin Basin

In the Fruitvale field of Kern County, Western Gulf Oil Co. has finished No. 26-B Kern County Land in section 22-29-27 flowing 141 bbls. of 19.9-gravity oil cutting 5 per cent daily from 4,002 feet. This well, brought in flowing through a 40/64-inch bean, has an 8⅝-inch water string cemented at 3,761 feet. The crew has been transferred to No. 27-B. Three potential producers are nearing completion in the Fruitvale field at present and at least one should be tanking oil within the next day or two. These are H. & H. Oil Co. No. 1 Neff in section 23-29-27; Siemon Brothers No. 1 Krebs in section 15-29-27, and L. C. Simmel No. 1 in section 23-29-27. Southwestern Oil Co. No. 1 Kern County Land in section 15-29-27 is also showing oil and may be given an early test.

In the Elk Hills field, Richfield Oil Corp. completed No. 8-A-H Crampton in section 1-31-24 pumping 70 bbls. of 21.3-gravity oil per day from 3,019 feet after the hole had been finished with 83 feet of 7-inch liner including 70 feet of 120-mesh landed on bottom. The last completion on this lease was completed pumping 231 bbls. daily. Out in the east end of the Elk Hills field and somewhat removed from production the company is preparing to spud in No. 1 Buena Vista in section 7-31-24. In the McKittrick field, East Puente Oil Co. completed No. 24 in section 11-30-21, pumping 35 bbls. of 14.3-gravity oil cutting 12 per cent daily from 1,308 feet. The hole was finished with 391 feet of 7-inch liner including 390 feet of perforated. In the Midway-Sunset field of Kern County, the U. S. Pumping Equipment Co. completed No. 5 pumping 12 bbls. of very clean 13.6-gravity oil per day from 1,350 feet after the hole had been plugged back from 1,650 feet where bottom water had been encountered. The crew was moved to No. 2 in the same section.

Coastal Area

Shell Oil Co. completed No. 1-25 Covarrubias in the Capitan field of Santa Barbara County but has not yet made a potential production test. It was brought in flowing 300 bbls. of exceptionally clean 44.1-gravity oil daily from 2,786 feet after the hole had been finished with 406 feet of 6⅝-inch liner carrying perforations at 2,410-2,546 feet and at 2,593-2,783 feet. Several wells

(Continued on Page 120)

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.70	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.06	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.08	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over.

Rocky Mountain Area

By
T. R. INGRAM

OLD SHAFFER WELL IN UTAH IN LONG DELAYED BLOW-OUT

DENVER, Colo., Aug. 23.—The Mountain Fuel Supply Co. No. 1 Donnell, on the Powder Wash structure, Moffat County, Colorado, proved to be a 4,000,000-foot gasser while plugging back and testing preliminary to abandoning.

An important test in eastern Colorado is to be drilled by the Gulf Oil Corp.'s Gypsy division. Location has been made for No. 1 U. P. Smith, C SW SE section 19-15s-53w, in Lincoln County.

The Murphy Oil Co. No. 4 Wilson, Quealy dome, Wyoming, was completed as a flowing well. The Ohio Oil Co. will drill a wildcat on Foote Creek, north of Quealy dome. Stanolind Oil & Gas Co. made a location for an 8,000-foot test in Fremont County and three Tensleep sand wells in Salt Creek.

The Glacier Production Co. completed a 30,730,000-foot gasser in Cut Bank field in Montana. Cut Bank had two new operations and one oil well completion which was better than the average. Kevin-Sunburst had one dry hole and two new operations.

John L. Shaffer No. 1 on the Cane Creek dome in Grand County, Utah, which was drilled by the Midwest Exploration Co. in 1924 and which started a big play on the so-called Colorado River structures following promising shows of oil, is cutting up again, according to information received by H. W. C. Prommel, of Denver, who originally mapped the structure, from F. W. Strong, president of the Cane Creek Oil Co., which is drilling an offset. This report stated that last Sunday the well blew out at 7 o'clock in the evening and continued until 3 o'clock the next morning when salt water took hold and sprayed oil and water until the drilling well had to shut down. There is no telephone connection with the well, which is located on a sand bar in the Colorado River, and the details as to what happened are not available. The foreman was reported in Moab to get connections with which to attempt to save the well.

No. 1 Shaffer had oil at 2,080 feet in December, 1925, and flowed 150 bbls. per day with 2,000,000 feet of gas. Rig was burned down and rebuilt. Oil increased to 350 bbls. per day before it was mudded off to drill deeper. The hole went into salt which subsequently proved to be about the thickest salt beds ever drilled in that region. At 3,627 feet the hole went into oil saturated shale and was drilled 6 feet into that horizon and casing set on bottom. While running pipe oil rose 800 feet. Coring was resumed in dry shale and no further attempt at the time was made to test the 3,627-foot horizon. At 4,970 feet it encountered considerable gas, but conditions were such that drilling was suspended. Some time later the Utah Southern Oil Co. attempted to test the several horizons. Pressure at the 3,627-foot horizon gauged 930 pounds. While attempting to pull the 4-inch at 3,800 feet to test, that string and the 6-inch collapsed. Upper part of 4-inch was recovered and well was supposed to have been plugged back to the 2,000-foot level. Here the 6-inch and possibly 8-inch were perforated. Well pumped 865 bbls. of fluid first day of which 250 bbls. were oil. Fluid showed steady decrease and tubing was pulled. Salt had lined the tubing like scales on a boiler and clogged it. Crystallization also took place and the efforts to produce the well were given up. While extensive testing followed on the flanks and on other domes, none of these yielded anything of importance.

The Shaffer well apparently was located in a fractured zone. Prommel in his report explained that this fracture can be traced 3 miles to the northwest and that a gap in the 300-foot high Wingate escarpment in that direction undoubtedly was caused by erosion where the fractured zone went through the escarpment. He took the position that the only way to find the source of the oil was to drill along this fractured zone until it was found. Upon receipt of word that the well had blown out, he said that the tremendous pressure necessary to produce that result, especially when the salt has the effect of crystallizing where it comes in contact with water and gas, supports his theory that there is a big reservoir of oil and gas at some source a considerable distance away. Whether the blowout was through the casing or on the outside was not stated in the report. However, two weeks ago oil was reported seeping to the surface around the old well. Whether this is from the 2,000-foot or 3,627-foot horizons cannot be determined. That it is migrating from below, however, is indicated by its higher gravity.

NEW MEXICO

An outpost well northwest of the Cooper pool was completed as a 62,500,000-foot gas well. It was Continental Oil Co. No. 1 Stevens, C SW NW section 34-23-36, Lea County. Pay was topped at 3,185 feet, it was bottomed at 3,691 feet and plugged back to 3,600 feet. Drill stem tests failed to indicate commercial oil production.

In the Maljamar area of Lea County, Maljamar Oil & Gas Co. No. 3 Mitchell, C SE NE section 20-17-32, found pay at 4,063 feet, total depth 4,070 feet, and flowed 137 bbls. of oil through casing in 24 hours. Gas was estimated at 2,000,000 feet daily.

Fourteen other wells were completed in Lea County the past week. Culbertson & Irwin No. 1 Humphreys, NE NW NE section 3-25-37, topped pay at 3,365 feet, total depth 3,470 feet, flowed 10 bbls. of oil an hour, through choke.

The Gulf Oil Corp. completed three wells. The No. 2 Westfall, C NW SE section 15-25-37, flowed 54 bbls. of oil daily on gas lift, cutting 20 per cent water. Top of pay was 3,325 feet, total depth 3,418 feet, and it was plugged back to 3,390 feet. The company's No. 1 Rinewalt, C SW NW section 4-22-37, had pay at 3,675 feet, total depth 3,752 feet, and flowed 97½ bbls. of oil naturally in eight hours. The No. 1-D Janda, C NW SW section 2-21-36, found pay at 3,730 feet, was bottomed at 3,835 feet, acidized and flowed 120 bbls. of oil in 24 hours, through tubing.

Atlantic Refining Co. completed one of the big wells of the week at No. 1-P State, C SE NW section 25-20-36. After topping pay at 3,790 feet and stopping at 3,850 feet, total depth, it flowed 126 bbls. of oil in 12 hours naturally, with drill pipe in the hole. After acidizing, it flowed at the rate of 2,160 bbls. of oil in 24 hours. Gas was estimated at 2,000,000 feet.

Continental Oil Co. No. 1 Wantz, C SW SW section 21-21-37, pumped 24 bbls. of oil in 9½ hours from pay topped at 3,718 feet, total depth 3,872 feet. Same company's No. 1-A State, NE NE SE section 20-20-37, topped pay at 3,650 feet, total depth 3,840 feet, flowed 92 bbls. of oil through tubing in 12 hours after first acid treatment; was reacidized and flowed 120 bbls. in 12 hours through choke.

Mid-Continent Petroleum Corp. No. 3 Greer, C SE NW section 21-22-36, flowed 388 bbls. of oil in nine hours through choke, after acidizing pay topped at 3,740 feet, total depth 3,830 feet.

Ohio Oil Co. No. 3 State Hansen, C W half NE NE section 16-20-37, had pay at 3,798 feet, was bottomed at 3,887 feet, plugged back to 3,880 feet, perforated casing and acidized, flowing 35 bbls. of oil hourly through choke.

Skelly Oil Co. No. 1-B Harrison, C NE NW section 9-23-37, topped pay at 3,465 feet, total depth 3,690 feet, was shot and produced 10,000,000 feet of gas. Same company's No. 8 Van Etten, C W half SE SE section 9-20-37, flowed 240 bbls. of oil daily on gas lift after acid treatment. Top of pay was 3,780 feet, total depth 3,874 feet.

Stanolind Oil & Gas Co. No. 3 Myers, C NE SE section 4-24-37, topped pay at 3,550 feet, total depth 3,640 feet, and flowed 31 bbls. of oil daily, through choke.

Texas Co. No. 12 Lieu Lands, C SW SW section 20-20-37, flowed 117 bbls. of oil in 24 hours through choke, with 26 per cent basic sediment and water. Pay was found at 3,732 feet, total depth 3,858 feet. Same operator's No. 4 Saunders Permit, C NE SW section 18-19-37, found pay at 3,930 feet and was bottomed at 4,030 feet. It swabbed 12 to 15 bbls. of oil an hour, was acidized and flowed 46 bbls. of oil an hour through tubing for five hours.

Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. Drlg. 3,910 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-25-37. Drlg. 3,575 ft.
Anderson-Prichard Oil Corp. No. 1 Gregory, NW sec. 33-25-37. Drlg. 1,875 ft.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,440 ft.
Anderson-Prichard Oil Corp. No. 1 Lanehart, SW sec. 21-25-37. T.D. 2,865 ft.; show of gas 2,853-65 ft.
E. G. Bradley No. 1 Lanehart, C SW NE sec. 28-25-37. Drlg. 2,493 ft.
J. W. Brown No. 1 State, C SW SW sec. 22-21-24. Drlg. 4,100 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 245 ft.
Continental Oil Co. No. 7 Britt, C SW SE sec. 18-20-37. Drlg. 1,737 ft.
Continental Oil Co. No. 1-A-15 Cline, NW sec. 15-23-37. Wildcat; P.B. from 3,860 ft. to 3,672 ft.; cleaning out.
Continental Oil Co. No. 2-A-15 Elliott, SE sec. 15-22-37. Drlg. 2,912 ft.
Continental Oil Co. No. 1 Hawk, SE sec. 5-21-37. Drlg. 3,320 ft.
Continental Oil Co. No. 1 Jack, C NW NE sec. 27-34-37. Drlg. 2,880 ft.
Continental Oil Co. No. 1-A-30 Lockhart, NW sec. 30-21-36. Rigging up rotary.
Continental Oil Co. No. 1-B-30 Lockhart, C SE SW sec. 30-21-36. T.D. 4,101 ft.; testing.
Continental Oil Co. No. 2-B-31 Lockhart, C SE SW sec. 31-21-36. Drlg. 3,352 ft.
Continental Oil Co. No. 2-A-14 Sanderson, NE NW NE sec. 14-20-36. T.D. 3,775 ft.; set 5½-in. csg.
Continental Oil Co. No. 1-E-17 State, C SE SE sec. 17-22-36. T.D. 3,842 ft.; flowed 90 B.O. in 24 hrs.
Continental Oil Co. No. 5-A-17 State, C SW NE sec. 17-19-37. Drlg. 3,660 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 2 Moseley, NE NW SW sec. 34-24-37. Drlg. 685 ft.
Emperor Oil Co. No. 1 Johns, C SW NW sec. 24-17-32. T.D. 710 ft.; lowering csg.
Empire Oil & Ref. Co. and Repollo Oil Co. No. 2 Brunson, NW sec. 3-22-37. Drlg. 1,220 ft.
Empire Oil & Ref. Co. No. 5 Clossen A, SE SE NE sec. 6-22-36. Drlg. 3,782 ft.
Empire Oil & Ref. Co. and Atlantic Ref. Co. No. 1 Hodges, NE cor. sec. 8-24-37. Drlg. 3,567 ft.
Empire Oil & Ref. Co. No. 1 Parsons, C SE SE sec. 27-19-36. T.D. 4,002 ft.; flowed 82 B.O. in 24 hrs.
Empire Oil & Ref. Co. No. 1-G State, sec. 2-21-36. T.D. 3,900 ft.; shut down.
Empire Oil & Ref. Co. No. 2-G State, C SE SW sec. 2-21-37. Drlg. 3,850 ft.
J. E. Farrell No. 2-B Walden, C NE SW sec. 15-22-37. T.D. 3,575 ft.; fishing.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,665 ft.
Bert Fields No. 3 Turner State, NW sec. 32-20-37. T.D. 3,843 ft.; testing.
Gulf Oil Corp. No. 2 Baker, SE sec. 5-22-37. Drlg. 3,410 ft.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; testing.
Gulf Oil Corp. No. 2 Cole, C NE NE sec. 16-22-37. T.D. 1,141 ft.; shut down.
Gulf Oil Corp. No. 3 Cole, C SE NE sec. 16-22-37. Derrick.
Gulf Oil Corp. No. 2 Day, NW sec. 6-22-36. T.D. 3,840 ft.; testing.
Gulf Oil Corp. No. 1 Elliott, SW SE SE sec. 15-25-37. Drlg. 3,380 ft.
Gulf Oil Corp. No. 1-H Graham State, C NW SW sec. 13-20-36. T.D. 3,835 ft.; acidized.
Gulf Oil Corp. No. 1-D Kutter, C SW SW sec. 8-19-37. Drlg. 4,040 ft.
Gulf Oil Corp. No. 1 Mattern G, C NE SE sec. 18-21-37. Drlg. 865 ft.
Gulf Oil Corp. No. 1 Monda, C SE SW sec. 21-22-37. T.D. 3,670 ft.; swabbing.
Gulf Oil Corp. No. 2 Reeves, C SE NW sec. 29-20-37. T.D. 3,840 ft.; putting on pump.
Gulf Oil Corp. No. 1 Stebbins, C SE NW sec. 5-22-37. Rigging up rotary.
Gulf Oil Corp. No. 1 Sticher, C SE SW sec. 4-22-37. T.D. 2,790 ft.; drlg. out.
Gulf Oil Corp. No. 1-B White, SE sec. 35-20-36. Derrick.
Herschback Drlg. Co. No. 1 Crutchfield, SW SE NE sec. 32-19-37. Drlg. 2,980 ft.
Homestead No. 1 Clifford, SW sec. 12-26-32. Wildcat; drlg. 1,171 ft.
Humble O. & R. Co. No. 1 Fopeano, C SE SW sec. 25-20-36. Drlg. 3,185 ft.
Humble O. & R. Co. No. 2 Saunders, C NW NW sec. 9-22-34. T.D. 1,851 ft.; set 10¾-in. csg.
Humble O. & R. Co. No. 2 Williams, C SE NW sec. 34-24-37. Drlg. 2,880 ft.

MORE THAN MERE RINGS OF RUBBER

Making Patterson-Ballagh Protectors Is a Science

Any rubber factory can mold rubber. But ordinary rubber falls far short of the toughness and uniformity of quality required in durable drill pipe and casing protectors. Patterson-Ballagh engineers discovered this ten years ago during the early development of protectors. They found it necessary to build a complete plant for the exclusive production of protectors. They had to cast aside precedent and create new methods of milling, compounding, treating and molding rubber to obtain the essential qualities for protectors.

The highest grade of rubber is used. This is

Crude rubber as it arrives at the factory direct from plantations.

a premium grade known as "Selected Estates" rubber obtained by direct shipment from the Dutch East Indies. No Philippine, "brown roll," "moldy," or "re-run" stock is ever used. Likewise, the finest chemicals are selected, such as the highest grade carbon black to insure a dense non-porous stock. Anti-oxidants are used in carefully predetermined quantities. Special chemicals discovered through long experimentation to insure against permanent "set" are used in the treating of the rubber, resulting in retention of elasticity even after the protectors are removed from the drill pipe for storage or placement on new pipe.

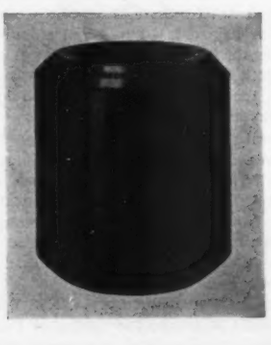
Patterson-Ballagh has developed what is believed to be the finest and most uniform rubber mixture obtainable anywhere in the world. The rubber stock has been greatly improved through constant research. These protectors retain their strength over long periods of time and are not affected by changes in weather. All tests must pull at least 200 lbs. per square inch at 100% elongation and 4600 to 5200 lbs. at 800% stretch. This is a severe test for any rubber and indicates the inherent strength and elasticity available only in Patterson-Ballagh Protectors.

Test strips are milled from every 25-lb. batch of cured rubber for preliminary tests.

Special care in milling insures against "setting up." The maximum size batch is less than 100 lbs. so that each unit of production is constantly inspected and can be properly aged. No batch is released for molding until duplicate test pulls have been made so that each batch meets specifications.

Experimental press in which test strips are cured. Three individual samples are tested and rechecked.

There are a number of interesting developments in the manufacture of Patterson-Ballagh Protectors. Production engineers and purchasing agents will be interested in the various processes. This manufacturing data has been compiled in convenient form and will be supplied by addressing:



PATTERSON-BALLAGH CORP., LTD.

Plant and General Offices:
1900 E. 65th St., Los Angeles, Calif.
***Mid-Continent Office:* 1507 Maury St., Houston.**
***New York City Office:* 39 Cortlandt St.**

Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; testing.
Landreth Prod. Co. No. 4 Grizzell, C SW SW sec. 5-22-37. T.D. 273 ft.; set 10¾-in. csg.
Mack & Stauffer No. 2 Grizzell, C NE NE sec. 8-22-37. T.D. 1,330 ft.; waiting on new engine.
Magnolia Pet. Co. No. 4 Cary, C SW SW sec. 21-22-37. Derrick.
Magnolia Pet. Co. No. 1 Hardy, SW SW NW sec. 29-21-37. Drlg. 3,421 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. Drlg. 4,100 ft.
J. A. Mascho No. 1 Cloyd, C SE SE sec. 20-22-33. Wildcat; derrick.
McDonald & Weiner No. 1 Elliott, SE cor. sec. 19-21-37. Drlg. 1,184 ft.
Mid-Continent Pet. Corp. No. 1 Owen, C NW NW sec. 3-22-37. T.D. 3,737 ft.; to acidize.
Murray et al No. 4 State Wallace, NW SW NW sec. 3-21-36. T.D. 3,840 ft.; shot and cleaning out.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; T.D. 1,682 ft.; set 8-in. csg.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 8-19-37. Drlg. 3,535 ft.
Ohio Oil Co. No. 3 State-Hansen, C W½ NE NE sec. 16-20-37. T.D. 3,887 ft.; P.B. 3,871 ft.; testing.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; cleaning out.
Ohio Oil Co. No. 8 State-McDonald, C SW SW sec. 16-22-36. T.D. 3,671 ft.; set 7-in. csg.
Ohio Oil Co. No. 3 State-McGrail, NE sec. 27-19-36. T.D. 4,050 ft.; acidized.
Ohio Oil Co. No. 2 Turner, SW NW SE sec. 29-21-37. Drlg. 3,720 ft.
Phillips Pet. Co. No. 1 Lea, C NW NW sec. 30-17-34. Wildcat; T.D. 4,686 ft.; to run csg.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Plains Prod. Co. No. 2 Moseley, SE sec. 34-22-37. Cellar.
Repollo Oil Co. No. 1 Carter, SW SE NE sec. 8-24-37. T.D. 265 ft.; to run csg.
Repollo Oil Co. No. 2 Christmas, sec. 28-22-37. T.D. 4,073 ft.; cleaning out.
Repollo Oil Co. No. 3 Jamison, SW NE NE sec. 21-24-37. T.D. 3,519 ft.; cleaning out.
Repollo Oil Co. No. 1 Turner, sec. 29-21-37. T.D. 3,800 ft.; to acidize.
Repollo Oil Co. No. 1 White, SE sec. 24-20-36. T.D. 3,861 ft.; acidized.
Repollo Oil Co. No. 2 Moseley, NE SE SW sec. 34-24-37. T.D. 240 ft.; set 13-in. csg. at 227 ft.
Rowan Drlg. Co. No. 1-A Elliott, SW sec. 27-22-37. Drlg. 3,240 ft.
Rowan Drlg. Co. No. 1 Elliott B, C NE NW sec. 9-22-37. T.D. 40 ft.; rigging up cable tools.
Rowan Drlg. Co. No. 2 Elliott B, C NW NW sec. 9-22-37. Cellar and pits.
Rowan Drlg. Co. No. 2 Walden, C NE NW sec. 15-22-37. Derrick.
Samedan Oil Co. No. 3 Hughes, sec. 4-23-27. T.D. 3,631 ft.
Schermerhorn Oil Co. No. 2 Woolworth, sec. 29-24-37. Drlg. 2,985 ft.
Shell Pet. Corp. No. 1-L State, NE NE SE sec. 1-21-35. Drlg. 3,029 ft.
Skelly Oil Co. No. 1 Baker, C NW NW sec. 26-22-37. Drlg. 3,624 ft.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,400 ft.; set 7-in. csg.
Skelly Oil Co. No. 2-B Harrison, C NW NW sec. 9-23-37. Drlg. 3,570 ft.
Skelly Oil Co. No. 1 Grizzell, C SW NE sec. 6-22-37. Drlg. 3,372 ft.
Skelly Oil Co. No. 1 Hill, C Lot 7, sec. 6-21-37. T.D. 3,530 ft.; W.O.S.T.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; cleaning out.
Skelly Oil Co. No. 4 G. W. Sims, C NW NW sec. 10-23-37. Drlg. 3,352 ft.
Skelly Oil Co. No. 2 H. O. Sims, sec. 4-23-37. T.D. 3,668 ft.; cleaning out.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,622 ft.
Skelly Oil Co. No. 1-C W. P. Sims, C SW NE sec. 10-23-37. T.D. 1,182 ft.; set 8⅝-in. csg.
Skelly Oil Co. No. 7 Van Etten, sec. 9-20-37. T.D. 3,876 ft.; to acidize.
Stanolind O. & G. Co. No. 26-A Farnsworth, C SE NW sec. 18-26-37. T.D. 503 ft.; set 10¾-in. csg.
Stanolind O. & G. Co. No. 4-A Gilluly, C NW NE sec. 24-20-36. T.D. 3,875 ft.; testing.
Stanolind O. & G. Co. No. 6-A Gilluly, C NE SW sec. 25-20-36. T.D. 2,600 ft.; set 9⅝-in. 2,583 ft.
Stanolind O. & G. Co. No. 7 Gilluly A, C SW SE sec. 24-20-36. T.D. 320 ft.; set 12½-in. csg.
Stanolind O. & G. Co. No. 8 Gilluly A, C NW SE sec. 24-20-36. Derrick.
Stanolind O. & G. Co. No. 1 Hill, C SW NE sec. 5-21-37. T.D. 3,761 ft.; testing on pump.
Stanolind O. & G. Co. No. 2-B Langlie, C NW NW sec. 15-25-37. Drlg. 2,972 ft.
Stanolind O. & G. Co. No. 3-B Langlie, C SW SW sec. 14-25-37. Drlg. 2,932 ft.
Stanolind O. & G. Co. No. 1-B Meyers, C NW NW sec. 7-24-37. Drlg. 3,123 ft.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 2-21-36. Derrick.
Stanolind O. & G. Co. No. 2 State, C SW SE sec. 2-21-36. Drlg. 3,025 ft.
W. H. Street No. 2 Wood, C SW NE sec. 22-22-37. T.D. 3,692 ft.; to acidize.
Texas Co. No. 1-B Keohane, C NW NE sec. 18-19-37. Drlg. 3,440 ft.
Texas Co. No. 11 Lieu Lands, C NW NW sec. 20-20-37. T.D. 3,867 ft.; testing.
Texas Co. No. 13 Lieu Lands, sec. 19-20-37. Drlg. 3,744 ft.
Texas Co. No. 5-C State, C NE NE sec. 19-20-37. Drlg. 3,588 ft.
Texas Co. No. 2 Weir, C SE SW sec. 23-19-36. Cellar and pits.
Texas Pacific C. & O. Co. No. 4-A State, C SW SW sec. 9-22-36. T.D. 3,878 ft.; P.B. 3,877 ft.; flowing 80 B.O. daily.
Texas Pacific C. & O. Co. No. 5-A State, sec. 19-22-36. T.D. 1,495 ft.; set 9⅝-in. csg.
Tide Water Oil Co. No. 4-J State, C NE NW sec. 17-19-37. T.D. 1,453 ft.; set 9⅝-in. csg. at 1,450 ft.
Tide Water Oil Co. No. 2-K State, C SE SW sec. 13-20-36. Drlg. 3,728 ft.
Western Gas Co. No. 4 Harrison, C NW SW sec. 29-24-37. T.D. 3,699 ft.; shut down.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,873 ft.; pumping 4 to 5 B.O. daily.
Woodley Pet. Co. No. 2 Cooke, C SE SE sec. 28-25-37. T.D. 169 ft.; set 10¾-in. csg.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 55 ft.; shut down.

Fred Brainerd No. 2 Brainerd, sec. 5-18-27. T.D. 1,100 ft.; running csg.
Ed Bryant No. 1 Stebbins, C NE SW sec. 19-20-29. T.D. 375 ft.
Carper Drlg. Co. No. 2 Geissler, SW SE NW sec. 23-17-30. R.U.M.
Cities Service Oil Co. No. 1 State, CSL SW SE sec. 16-17-30. Rigging up.
T. D. Collins No. 1 Weiler, C NW NW sec. 13-24-36. T.D 1,970 ft.; P.B. 1,965 ft.; preparing to run csg.
Continental Oil Co. No. 1 Barret, SE sec. 14-20-30. Drlg 600 ft.
Continental Oil Co. No. 1 Etz, C NW NE sec. 24-16-30. Drlg. 2,450 ft.
Emperor Oil Co. No. 3 Puckett, C NE NW sec. 24-17-31. T.D. 355 ft.; to run csg.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; drlg. 530 ft.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,800 ft.
Franklin Pet. Corp. No. 1 Nelson, NW sec. 4-18-30. Wildcat; T.D. 2,953 ft.; P.B. 2,906 ft.; S.D. for orders.
F. W. & Y. Oil Co. No. 5 Gissler, C NE SE sec. 14-17-30. T.D. 3,450 ft.; P.B. 3,370 ft.; swabbed 60 to 70 B.O. daily.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fishing.
F. W. & Y. Oil Co. No. 4-A Jackson, NE sec. 13-17-30. Drlg. 2,968 ft.
F. W. & Y. Oil Co. No. 5-A Jackson, NE sec. 13-17-30. Rig.
F. W. & Y. Oil Co. No. 3-X Jackson, SE sec. 13-17-30. Drlg. 3,010 ft.
F. W. & Y. Oil Co. No. 2-A Stevens, C NW SW sec. 13-17-30. Drlg. 3,270 ft.
F. W. & Y. Oil Co. No. 3-A Stevens, NW sec. 13-17-30. Drlg. 3,251 ft.
F. W. & Y. Oil Co. No. 4-A Stevens, C SW SW sec. 13-17-30. Drlg. 2,295 ft.
F. W. & Y. Oil Co. No. 2-B Stevens, NW sec. 13-17-30. Rig.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 115 ft.; shut down.
H. & W. Drlg. Co. No. 1 Stoney Permit C NW SE sec. 31-19-30. Drlg. 370 ft.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. Drlg. 610 ft.
W. A. Nichols No. 1 Johnson, NE sec. 35-16-21. Wildcat; drlg. 3,240 ft.
Premier Pet. Corp. No. 1-E Parker, sec. 22-17-30. Drlg. 1,270 ft.
Red Lake No. 9 State, sec. 22-17-28. T.D. 1,954 ft.; C.O.; 1,100 ft. oil in hole.
Repollo Oil Co. No. 2-D McIntyre, NW NE SW sec. 20-17-30. Drlg. 2,245 ft.
Republic Prod. Co. No. 2-B Robinson, sec. 27-17-29. T.D. 2,805 ft.; cleaning out.
Paul Sargent No. 1 State, NE sec. 16-17-31. Drlg. 3,202 ft.
R. A. Shugart No. 1 Sullivan, C NW SW sec. 35-18-31. T.D. 905 ft.; set csg.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 575 ft.; shut down.
Superior Oil Co. No. 1 Foster, SE SE NE sec. 17-17-31. Drlg. 3,090 ft.
Tigner, Etz & Keyes No. 2-B Keyes, NW sec. 10-17-28. T.D. 980 ft.; S.D.
Weiner & McDowall No. 1 Kerr, C SE NW sec. 3-24-24. T.D. 1,750 ft.; S.D. for csg.
W. K. Royalty Co. No. 1 State, C SW NE sec. 16-17-31. Drlg. 2,015 ft.
Western Drlg. & Eng. Co. No. 1 Western, NW sec. 26-17-29. Drlg. 2,484 ft.
Western Gas Co. No. 1 Cagle, C NW NW sec. 8-26-30. Drlg. 875 ft.
Neil H. Wills No. 1 Vickers, C NW SE sec. 23-20-28. Wildcat; drlg. 448 ft.

Chaves County

English & Harmon No. 1 Billingslea, SE sec. 9-15-29. T.D. 3,539 ft.; sulfur water 3,532-39 ft.; S.D.O.

Curry County

Bond & Harrison No. 1 Hart Ranch, C NW SE sec. 13-2n-31. T.D. 1,800 ft.; S.D. for repairs.

Dona Ana County

Juels C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Government, NE sec. 14-14-10w. T.D. 1,390 ft.; fishing.

Otero County

George Mulvey No. 1 State, SW cor. sec. 11-25-8. T.D. 263 ft.; shut down.
Fred Turner No. 1 Evans, NW NW SW sec. 22-14-12. O.W.D.D.; wildcat; T.D. 3,763 ft.; S.D.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. Rigging up standard tools.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. Drlg. 3,550 ft.

San Juan County

Continental Oil Co. No. 63 Rattlesnake, C SW NE sec. 2-29n-19w. T.D. 820 ft. in sd.; will test.
Jack Amenda No. 4 Hart, NW NE SW sec. 25-30n-12w. Drlg. 1,995 ft.
Red Butte Oil Co. No. 1 Govt., C SW SW sec. 6-21n-13w. R.U.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. 725 ft.

COLORADO

Adams County

Glenridge Oil Corp. No. 1 Hills, SE cor. sec. 27-3s-64w. S.D. 4,345 ft.

Archuleta County

Cortez Oil Co. No. 1-A Crowley, NW SE NE sec. 2-32n-2e. S.D. 40 ft. C.D.).
Oil City Pet. Co. and Archuleta O. & G. Co. No. 1 Reader, SW SE SW sec. 24-33n-2e. T.D. 1,005 ft.; C.O. at 965 ft. and carrying 5 5/8-in.
Oil City Pet. Co. No. 1-A Garnett, NE NW SW sec. 25-33n-2e. T.D. 1,515 ft.; rng. 6 5/8-in. to set at 1,365 ft.; will redrill to bottom and set 5 1/2-in.

Bent County

Indian Terr. Ill. Oil Co. and Olson Drlg. Co. No. 1 Arbes, C Lot 2, sec. 2-21s-48w. Drlg. 4,320 ft.

Boulder County

J. B. Furstenberg No. 1 Foote, SE sec. 20-1n-70w. Drlg. 1,730 ft.

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Boulder Prod. & Dev. Co. No. 11 Harlow Est., SE NE sec. 36-2n-71w. S.D.O. 765 ft.; dry in Muddy.

Fremont County

Utex Oil Co. No. 26, C SE SW sec. 20-20s-69w. Drlg. 1,300 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Drlg. 290 ft.

Kiowa County

Morgan & Flynn et al No. 1 Hostetter, C NW SE sec. 6-20s-46w. Drlg. 3,550 ft.; cg. 3,515-20 ft.; showed very little porosity with S.O.

Larimer County

Great West O. & G. Corp. No. 1 Haworth, C SW SE sec. 16-4n-69w. Drlg. 1,650 ft. in Pierre.

Lincoln County

Gulf Oil Corp. No. 1 Smith, C SW SE sec. 19-15s-53w. Loc.

LaPlata County

N. Spatter No. 1 Bryce, SE SW SW sec. 31-33n-9w. Drlg. 400 ft.

Mesa County

Midwest Drlg. & Dev. Co. No. 1 Callahan, NE NW SE sec. 30-8s-97w. T.D. 1,174 ft.; U.R. 10-in. through wet sd. into dry sd.; G.S. through 350 ft. of W.

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. M.I.M.

Moffat County

The Mountain Fuel Supply Co. No. 1 Donnell, C SE NE section 31-12n-97w, Powder Wash structure, which did not look promising for a producer when plugging back from a total depth of 5,878 feet began, was completed as a gas well from a sand in the Wasatch at 2,952-3,068 feet. It made 4,000,000 feet per day through the perforated 8⅝-inch. It had water in the base of the Wasatch and at 4,963-65 feet and 4,922-30 feet. The well is on the northwest flank and 1¼ miles from No. 1 Musser, the gas discovery and half a mile northwest of No. 1 Stewart, an oil well. Elevation of No. 1 Donnell is 6,759 feet.

Mountain Fuel Supply Co. and Kerlyn Oil Co. No. 1 Duncan, C NE SW sec. 1-11n-100w. Spdg.

Stanolind O. & G. Co. No. 1-X Parkman, SE NW NW sec. 23-4n-92w. T.D. 3,451 ft.; tstg.

Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. Drlg. 1,475 ft.

Anderson-Kerr Drlg. Co. et al No. 1 Denise, C SE SE sec. 19-9n-99w. S.D. 2,500 ft.; W.O. rotary tools.

Texas Co. No. 4 Iles Inv. Co., Lot 7, sec. 23-9n-92w. T.D. 3,490 ft.; tstg.

Morgan County

Swisher et al No. 1 Lunt, SE cor. sec. 3-4n-60w. T.D. 1,718 ft.; fshg. two strings tools and bailer.

Park County

South Park Oil Co. No. 1 State, SE SE SW sec. 16-11s-75w. T.D. 5,705 ft.; C.O. to set 4⅞-in.

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. S.D. 5,210 ft.; M.I. 6¼-in.

Pitkin County

Glenco Dev. Co. No. 1 Govt., NW cor. sec. 9-10s-89w. Drlg. 950 ft. (farm name cor.).

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Bldg. rig.

Texas Co. and California Co. No. 1 Unit, SW SE NW sec. 35-3n-94w. S.D. 2,876 ft.; installing new mud pump.

WYOMING

Albany County

The Murphy Oil Co. No. 4 Wilson, NW NW SW section 18-17n-76w, Quealy dome, was completed at 3,601 feet as a flowing well from the Dakota. It made 96 bbls. per day through a 3/32-inch choke with a back pressure of 104 pounds. It is an outside well at the north and proves up one location. Company has made a location for No. 9 Holst two locations north of the nearest producer.

The Ohio Oil Co. is moving in for a test on the Foote Creek structure in its No. 1 D. J. Griffin, C SE SW section 2-21n-77w, 18 miles north of the Quealy dome. The Prairie Oil & Gas Co. drilled in section 25-22n-78w, a number of years ago and found water in the Tensleep at 2,140 feet. The Embar was missing.

Ohio Oil Co. No. 1 Griffin, C SE SW sec. 2-21n-77w. M.I.M.

Murphy Oil Co. No. 8 Holst, C SW SE sec. 13-17-77w. Drlg. 3,036 ft. in gr. sh. and shells.

Murphy Oil Co. No. 9 Holst, NW SE NE sec. 13-17n-77w. Loc.

Hal Blakeman No. 1 Chapple, C NE NW sec. 33-21n-67w. T.D. 1,681 ft.; prep. to resume.

Big Horn County

Yale Pet. Corp. No. 1 Stock-Jones, SE cor. sec. 52-56n-97w. T.D. 4,050 ft.; cir. oil to free D.P.

Ohio Oil Co. No. 2 Byron-Baker, SW NW sec. 23-56n-97w. T.D. 5,232 ft.; rng. pipe; top of lime 5,205 ft.

Ohio Oil Co. No. 1 Pryde, C SW SE sec. 24-56n-97w. Drlg. 5,683 ft. in r.b.; rng. low.

Joan Oil Co. No. 1 Howell, sec. 32-55n-97w, (Lot 63). T.D. 1,150 ft.; U.R. 12½-in.

Peay Oil Co. No. 1 Denio, Tr. 43-C, sec. 15-55n-97w. T.D. 3,930 ft.; fshg.

Woods-Callahan Oil Co., Ltd., and Wyoming O. & R. Co. No. 1 Evans, NE NE NW sec. 12-44n-91w. Drlg. 2,530 ft. in Upper Madison; wtr. from behind 8⅝-in. at 2,158 ft.

Campbell County

Powder River O. & G. Co. No. 1 Rhodes, NE SE SW sec. 24-49n-74w. Drlg. 475 ft.; carrying 15½-in.

Carbon County

The Ohio Oil Co.-Medicine Bow Oil Co. No. 1 Union Pacific-Wister, C NW SW section 17-22n-78w, Allen Lake gas field, averaged 40,000,000 feet a day from the Sundance at 1,952-2,045 feet after drilling plug and testing. It showed for 46,000,000 feet on a drill stem test before setting pipe. This is one of the largest wells in the field.

Ohio Oil Co. No. 12 H.&C., SE SW sec. 35-20n-78w. Loc.; M.I.M.

Sinclair-Wyoming Oil Co. No. 11 Wertz, SE NW NW sec. 7-26n-89w. T.D. 4,048 ft.; rec. D.P.; setting packer.

Ohio Oil Co. No. 1 Wyo. O. & G. Co., C SE SW sec. 29-27n-89w. T.D. 1,488 ft.; pig. nearby old well before completing.

Producers Oil Co. No. 1, CNL sec. 14-20s-88w. Drlg. 194 ft.

Ohio Oil Co.-California Co. No. 5 Cronberg-U. P., C NW NW sec. 25-21-79w. Drlg. 4,221 ft.

Ohio Oil Co. No. 1 Union Pacific, C NW NW sec. 20-21n-80w. Drlg. 2,435 ft.

Ohio Oil Co.-California Co. No. 3-A Kyle, C SW NE sec. 26-21n-79w. Drlg. 4,180 ft.

Medicine Bow Oil Co. No. 1 Hintze-Govt., C NE SE sec. 18-22n-78w. T.D. 2,347 ft.; P.B. to second Sundance at 2,140-80 ft.; shot with 40 qts.; tstg.

Ohio Oil Co. No. 8 Dixon, SE NE SE sec. 34-20n-78w. T.D. 5,431 ft.; P.B. to Dakota at 3,140 ft.; comp. for repressure well.

Converse County

Paul Thornton et al No. 1 Roth, C NW SE sec. 13-32n-69w. Spdg. (first report).

Wyoming Southern Oil Co. No. 1 Lane, C NW NE sec. 27-32n-69w. Spd. and S.D.

Elbe Oil Ld. & Dev. Co. No. 1 Benham, NW NE sec. 5-31-70w. M.I.M.

Tom Carney No. 1 Beaver, SE SE SW sec. 28-35n-68w. M.I.M.

Chadron-Osage Oil Co. No. 1 State, SW cor. sec. 16-32n-69w. Drlg. 3,805 ft. in sh.

Wyoming Southern Oil Co. No. 3 Salisbury, C S½ NE sec. 26-32n-69w. R.U.

Fremont County

The Stanolind Oil & Gas Co., which has done little wildcatting in the Rocky Mountain area since it absorbed the Midwest Refining Co. several years ago, has made a location for a test on the Beaver Creek dome, east of Riverton in its No. 1 Government, C SE SE section 3-35n-96w. It will start in the Tertiary and may go to 8,000 feet, if necessary. The Frontier sands lie deep

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THE OIL AND GAS JOURNAL

here. Location was made following extensive surface geology and seismograph survey. Beaver Creek is about 15 miles north of the Big Sand Draw gas field.

Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-35n-96w. Loc.; (first report).
Sinclair-Wyoming Oil Co. No. 2-C Muskrat, NE SW SW sec. 1-33n-92w. Cg. 7,824 ft. in hd. L.
H. Kenyon Burch No. 1 Enos, CEL NE NE sec. 28-3n-1w. S.D.O. 970 ft.; no shows.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. Drlg. 425 ft.

Hot Springs County

Italo Pet. Corp. No. 1 Phebus-Govt., NW NW SW sec. 11-44n-98w. Rlg.

Johnson County

Carter Oil Co. No. 3 Rider, C NW SE sec. 17-48n-82w. Drlg. 6,723 ft. in Amsden.

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.
Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-11w. Deepened to 1,156 ft.; recmtd. 8⅝-in. at 1,135 ft.

Natrona County

The Stanolind Oil & Gas Co. released locations for three Tensleep wells in the Salt Creek field. Its No. 1 T.P. in section 26, plugged back again to 4,015 feet to shut off bottom water and is testing. Last test before plugging back showed for about 1,800 bbls. per day.

Stanolind O. & G. Co. No. 11 Wyo. Asso.-Tensleep, C NE NW sec. 35-40n-79w. Loc.
Stanolind O. & G. Co. No. 29 Wyo. Asso.-Tensleep, C SW SW sec. 26-40n79w. Loc.
Stanolind O. & G. Co. No. 11 Wyo. Asso.-Tensleep, C NE SW sec. 35-40n-79w. Bldg. rig.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Drlg. W.W. and bldg. rig.
Stanolind O. & G. Co. No. 1 T.P., C NW SE sec. 26-40n-79w. T.D. 4,143 ft.; P.B. to 4,015 ft.; tstg.
Wyalta Oil Co. No. 4 Govt., NW NW sec. 5-29n-81w. Cmtd. 6⅝-in. on top Sundance at 1,082 ft.; rng. 2-in. tbg. to test at 1,030-72 ft.
Wyalta Oil Co. No. 5 Govt., SW SW sec. 30-30n-81w. Tstg. at 1,021 ft.
Wyalta Oil Co. No. 6 Govt., NE SE NW sec. 5-29n-81w. Cmtd. 10-in. at 704 ft.; Dakota at 565-664 ft.

Niobrara County

W. A. Maupin et al No. 1 Berggren, NW sec. 23-35n-63w, (18 mi. SE Lance Creek). Rig. (cor. operator).
J. M. Huber Corp. No. 2 Lamb, NE SE SW sec. 27-36n-65w. Drlg. 390 ft.; 13⅜-in. at 206 ft.
Continental Oil Co. No. 5-B Schuricht, C SW SW sec. 5-35n-65w. Cg. 4,010 ft.
Ohio Oil Co. No. 2 Taylor-O.P.C.-32, NW NW SW sec. 3-35n-65w. Last depth reported 5,355 ft.; "mystery" well.
Ohio Oil Co. No. 2 Leo-O.P.C., NE NE SE sec. 35-36n-65w. R.U.R.
Ohio Oil Co. No. 1 Leo-O.P.C.-7, NW NW SE sec. 35-36n-65w. Drlg. 3,880 ft.
Ohio Oil Co. No. 10 Lamb-Acct. 2, C NE SE sec. 5-35n-65w. Drlg. 4,815 in r.b.; top 4,182 ft.
Continental Oil Co. No. 1 Leach, SW NE NE sec. 29-36n-64w. T.D. 2,738 ft.; fsg.
Argo Oil Co. No. 4 Ford, SW NW SE sec. 33-36n-65w. Drlg. 5,254 ft. in r.b.
A. B. Cobb and Holly Dev. Co. No. 2 Novick, SE SE SW sec. 6-35n-65w. No report; (mystery well).
Continental Oil Co. No. 8 Otto Rohlff, SW SW SE sec. 31-36n-65w. T.D. 4,004 ft.; rng. 7-in.
Continental Oil Co. No. 10 Tom Bell Cattle, C SW NW sec. 34-36n-65w. Drlg. 5,756 ft. in L.
MacKinnie Oil & Drlg. Co. No. 2 Thompson, NW NW NE sec. 7-35n-65w. S.D. 4,064 ft.; Sundance at 4,049-64 ft.; dry.

Park County

Resolute Oil Co. No. 1 Northern Pacific, C NE NW sec. 21-57n-101w. Drlg. 3,450 ft.
Resolute Oil Co. No. 1 Govt., C NE NE sec. 20-57n-101w. Drlg. 7,100 ft.
Texas Co. No. 4 Sonners, SE cor. sec. 29-51n-100w. Cg. 3,390 ft.
Ohio Oil Co. No. 15 Woods O.P.C.-3, NW SE sec. 30-58n-99w. R.U.R.

Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Drlg. 3,414 ft. in gr. sd.

Sublette County

Texas Co. No. 6-J, NE SE SE sec. 27-27n-113w. T.D. 986 ft.; tstg.

Sweetwater County

Mountain Fuel Supply Co. No. 1 Union Pacific, C SW SE sec. 13-17n-104w. T.D. 3,275 ft.; drlg. out tbg. to deepen.
Mountain Fuel Supply Co. No. 1 Williams, C NE NE sec. 5-12n-95w. M.I.M.
Mountain Fuel Supply Co. No. 1 Stone, C SW SW sec. 18-19n-103w. Drlg. 4,233 ft.; hot sulfur wtr. at base of Sundance.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SE NE sec. 29-15n-104w, S of Baxter Basin. Loc.

Uinta County

E. A. Ottman et al No. 1 Govt., C SE NW sec. 26-14n-119w. Drlg. 930 ft.

Washakie County

Wyoming O. & R. Co. No. 9 Govt., CNL NE NW sec. 31-48n-90w. Drlg. 250 ft.
Arlton & Doyle No. 1 Govt., SW SW SE sec. 29-48n-91w. S.D. 1,750 ft.

Weston County

Mush Creek Oil Co. No. 1 Carmine, SE SW sec. 31-44n-62w. Loc.; (first report).
Le Faivre Oil Synd. No. 1 Martin, NW NW SW sec. 29-45n-68w. Drlg. 2,550 ft.; will U.R. 10-in. at 2,130 ft. for W.S.O.
Big Indian O. & Dev. Co. No. 1 George, SW SE NW sec. 12-47n-64w. Drlg. 450 ft.
Osage Trust Co. No. 4, SE NW SE sec. 22-46n-63w. Drlg. 146 ft.

MONTANA

Big Horn County

Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. Drlg. 4,180 ft.

Carbon County

Miracle Oil Co. No. 2, CWL NE SE sec. 3-6s-23e. Drlg. 1,400 ft.
R. C. Tarrant No. 1 Heare, CWL NE NW sec. 14-6s-19e. Drlg. 358 ft.
Ohio Oil Co. No. 16 Kirt, C SE SE sec. 4-7s-21e. T.D. 4,950 ft. in Mowry sh.; 8⅝-in. set on bottom.
Geo. Muth et al No. 1, CSL SE SE sec. 23-6s-23e. S.D. 1,500 ft. indef.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. Drlg. 930 ft.

Choteau County

Security Pet. Corp. No. 1 Johnson, NE sec. 23-26n-3e. R.U.C.T.

Daniels County

Whitetail O. & G. Co. No. 2 Wiley, NW NW NW sec. 10-36n-50e, Scobey dome. Drlg. 1,030 ft.

Fallon County

Johnson-Burke No. 1 Govt., SE NE SE sec. 6-8n-59e. Drlg. 700 ft. in Bearpaw sh.

Fergus County

Judith Operating Co. No. 2 Scharf, CWL NW NE sec. 35-22n-17e. Res. at 3,180 ft.
C. L. Emmons No. 5 Govt., CEL SE NE sec. 24-22n-18e. Drlg. 740 ft. in Colo. sh.
White Top O. & G. Co. No. 1, C NE SW sec. 35-14n-19e. Drlg. 320 ft. in Quadrant.

Glacier County

Two completions and two new operations were reported in the Cut Bank field.

The Glacier Production Co. No. 1 Johnston Unit, NE NE SW section 11-33n-5w, was completed at 2,724 feet for 30,730,000 feet of gas. It is one of the largest gas wells completed in the field, especially in the Cut Bank sand. The Sunburst at 2,615-53 feet had 1,000,000 feet a day, estimated. The Cut Bank was at 2,663-2,724 feet. Elevation is 3,858 feet.

The Grant Oil Co. No. 1 Rieffen, C SW SE section 5-32n-5w, proved to better than an average well and swabbed 420 bbls. first 24 hours at 2,948 feet from the Cut Bank sand at 2,912-44 feet.

Glacier Prod. Co. No. 3 Fuller, SE SE SE sec. 17-33n-5w. Spdg. at 110 ft.; (first report).
Glacier Prod. Co. No. 1 Newell Unit, SE SE NW sec. 13-33n-5w. M.I.M.; (first report).
Texas Co. No. 5 Tribal-121, C SW SE sec. 36-33n-6w. R.U.R.
Texas Co. No. 3 State (M-455), C NE NW sec. 16-32n-5w. Bldg. rig.
Texas Co. No. 7 Morrison, CEL SW SE sec. 22-35n-6w. Bldg. rig.
Glacier Prod. Co. No. 1 Monroe Unit, SW SW NE sec. 23-33n-5w. Drlg. 200 ft.
Lawler-Hoer No. 2 Downen, SW SE SW sec. 9-33n-5w. R.U.
Indian Oil Co. No. 3 Haglund, Sr., C SW NW sec. 13-34n-6w. Drlg. 280 ft.
Santa Rita O. & G. Co. No. 2 Lander, CWL SW SE sec. 16-35n-6w. Drlg. 2,567 ft.
K. D. Pardee No. 1 Jackson, CSL SE NE sec. 35-34n-6w. Drlg. 550 ft.
Santa Rita O. & G. Co. No. 2 Govt., C SE SW sec. 4-32n-5w. Cmtd. 7-in. at 2,971 ft.
Montana Headlight Oil Co. No. 8 Yunck, NW SW NW sec. 1-34n-6w. Drlg. 2,680 ft.
Montana Headlight Oil Co. No. 7 Yunck, SW NW NW sec. 1-34n-6w. T.D. 2,741 ft.; rng. 8¾-in.
R. C. Tarrant No. 6 Long-Miller, C SW NW sec. 24-34n-6w. Drlg. 2,035 ft.
Drumheller Oil Trust No. 1 fee, C NE SW sec. 17-34n-6w. Drlg. 2,565 ft.
Glacier Prod. Co. No. 1 Long, CWL NE NW sec. 22-32n-5w. Drlg. 2,680 ft.
A. B. Cobb No. 5 Walburger, C NE SE sec. 35-35n-6w. Ready to spud.
K. D. Pardee No. 1 Corrigeaux, NE NE SE sec. 35-34n-6w. Cmtd. 7-in. at 2,960 ft.; S.D.
A. R. Pardee No. 1 Anderson, C SE SW sec. 31-32n-5w. T.D. 2,900 ft.; C.O. 300 ft. off bottom.

Outside Cut Bank

W. E. Ullman No. 1 Allotted, C SW sec. 35-36n-8w. R.U.R. (formerly Wheatman Pet. Co.).

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. T.D. 1,600 ft.; cmtd. 6⅝-in.; top of Penn.

Musselshell County

R. C. Tarrant and Johnson No. 24-A Govt., SW NW NW sec. 25-11n-24e. Drlg. 1,107 ft.

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. Drlg. 660 ft.

Petroleum County

H. C. Rowland No. 1 Kalispel, NE NE SE sec. 35-14n-25e. Drlg. 508 ft.; (C.D.) in Colo.
O. B. Canfield No. 1 Govt., CEL SE NE sec. 21-17n-24e. S.D. 735 ft.; (C.D.) in Kootenai.

Pondera County

Kirk Oil Co. No. 1 Kellogg, SE NE NE sec. 31-28n-4w. T.D. 2,296 ft.; drlg. up tbg.

Roosevelt County

John W. Schmidt et al No. 1 Freu, NW NW NE sec. 21-28n-50w. Drlg. 700 ft.

Toole County

The Hardrock Oil Co. No. 1 Clark, SW NW SE section 24-37n-1w, the discovery well on the Bow and Arrow structure, drilled in 1935 by T. P. Kyle and completed at 2,080 feet for 4,600,000 feet of gas per day, was deepened 31 feet by the new owner and gas increased to 19,000,000 feet. E. B. Coolidge and associates purchased the well recently as a reserve gas supply for Shelby and other towns in that district. These interests control the Treasure State Pipe Line Co., which transports the gas. The structure is a small one and Clark drilled on the flanks for oil without success. Location has been made for No. 2 Clark.

One well, a dry hole, was completed in the Kevin-Sunburst field in the Consolidated Gas Co. No. 1 Hugi, NE NE NW section 14-35n-3w, which was abandoned at 1,743 feet. There were two new operations.

M. W. Cassidy No. 2 Thompson, C SE NW sec. 2-35n-3w. Drlg. 900 ft.; (first report).
Rice Oil Co. No. 1 Anderson, SW SW NE sec. 8-35n-1w. Drlg. 400 ft.; (first report).
M. W. Cassidy No. 1 Mary, CEL NE NW sec. 5-34n-3w. S.D. 90 ft.
Adlon Oils & Mines, Ltd., No. 2 Ward, C SE SE sec. 29-35n-3w. Drlg. 950 ft.
Anaconda-Kevin Oil Co. No. 2 Govt., NE SW NW sec. 19-35n-2w. Drlg. 1,300 ft.
E. C. Ellis No. 1 Ward, C SE NE sec. 29-35n-3w. Changing to National machine.
Raymond E. Dockery No. 1 Gunderson, NE SE NW sec. 19-35n-2w. Drlg. 1,450 ft.
C. T. Olen No. 7 Engemoen, C NW NW sec. 14-35n-2w. T.D. 1,898 ft. in contact; S.O.
C. L. Tomlinson No. 1 Davidson, NW NE SE sec. 28-35n-3w. T.D. 1,240 ft.; fsg.
A. E. Crumley No. 2 Govt., SW NE NE sec. 35-36n-2w. Drlg. 1,250 ft.
McKnight & Pinkney No. 5 Seabrook, NW NE SW sec. 19-35n-2w. T.D. 1,562 ft.; S.O.; will acid.
E. O. Reickhoff No. 3 Baum, SW SW SE sec. 3-35n-3w. T.D. 110 ft.; str. cr. hole.
Big West Oil Co. No. 1 Jackson, C SW NE sec. 30-35n-3w. Cg. 1,890 ft.
California Co. No. 7 Neumann, NW NW NE sec. 23-35n-2w. Loc.
California Co. No. 6 Neumann, NE NW NE sec. 23-35n-2e. Loc.
McCurdy No. 1 Hollowell, C SE SW sec. 1-35n-3w. S.D. 1,200 ft.
Larson & Ness No. 1 Horner, C NW NE sec. 30-35n-3w. T.D. 1,918 ft.; C.O.
R. C. Tarrant No. 1 Barkulo, C NW NW sec. 25-35n-4w. Drlg. 1,650 ft.
Capitol Oil Co. No. 1 Pace, C SE SW sec. 27-36n-1w. T.D. 2,010 ft.; fsg. tools.
S. V. Day No. 3 Halter, NE NE NE sec. 17-35n-2w. T.D. 1,626 ft.; contact 1,605 ft.; will acid. again.
Watson et al No. 2 Leach, SE NE NE sec. 31-35n-3w. S.D. 1,796 ft.
Bryant Bros. No. 1 Lashbaugh, NE SW NW sec. 34-25n-2w. T.D. 850 ft.; R.U. heavier mach. to resume.
Ogden-Kevin Oil Co. No. 7 Zachot, SE SW NW sec. 20-35n-1w. T.D. 1,535 ft.; contact 1,520 ft.; 80 ft. oil; will acid.

Outside Kevin-Sunburst

Model Oils., Inc., No. 1 Fey, NE SW sec. 5-37-3w. Drlg. 1,550 ft.
Hardrock Oil Co. No. 2 Clark, C NW SE sec. 13-37n-1w. R.O.G.; (first report).

Yellowstone County

Western Dakota Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. Cmtd. 12½-in. at 1,021 ft.
Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. Drlg. 1,800 ft. through Mowry sh.

UTAH

Carbon County

Kelly Young No. 1, NE NE SE sec. 20-14s-10e. T.D. 1,080 ft.; S.G. through H.F.W.; U.R. 6⅝-in. for S.O.

Daggett County

Mountain Fuel Supply Co. No. 1 Smith, C SW NE sec. 30-3n-24e. Cmtd. surf. pipe at 279 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. S.D. 6,715 ft.; M.I. heavier rot. equip.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 2,334 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. S.D. 154 ft.

NEBRASKA

Sioux County

J. M. Huber Corp. and United Producers, Inc. No. 1 Morgan, C SW SW sec. 32-35n-56e. Drlg. 3,000 ft.

Dawes County

Stephens Oil Corp. No. 1 Palmer, C NW SW sec. 1-33n-50w. S.D. indef. 2,531 ft.

Keith County

Twentieth Century Oil Co. No. 1 Stuken, C NW NW sec. 21-14n-37w. S.D. 110 ft.; indef.

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW sec. 24-15n-31w. T.D. 1,802 ft.; res. with rotary tools; contract let to Helmerich & Payne.

Jefferson County

L. R. Page et al No. 1 Bonham, C SE SE sec. 1-1n-1e. R.U.

Czechoslovakian Output

Czechoslovakian crude oil production during the first half of 1937 totaled 61,967 bbls., a decline of approximately 13 per cent compared to the first six months of 1936 when yield totaled 71,789 bbls. In June the output was 11,699 bbls., a gain of 22 per cent over May, but 7 per cent lower than the corresponding month in 1936 when yield was 12,595 bbls.

East and West Kentucky Continue Very Active

By SPECIAL CORRESPONDENTS

ASHLAND, Ky., Aug. 23.—Three oil well completions are included in this week's report with one of the wells, the best producer reported in several months.

Oakes & Crabtree No. 2 Andrew Combs, in Lee County, had 500 feet of oil in the hole when shot. Reports today reveal it is pumping 175 bbls. of oil per day.

Thomas Whitmer completed No. 3 J. C. White, in Lee County, with a production of 10 bbls. per day.

James Brown No. 1 Booth heirs, on Devil's Creek in Wolfe County, was drilled to 1,300 feet, and is good for 2 bbls. per day.

In Magoffin County, A. V. Hoenig is cleaning out a well on the Charles Wheeler (Venus) farm and also has a location cleared on the same farm and plans to start operations in the immediate future. This operator experienced considerable bad luck in No. 34 Green Rice and is fishing for tools in the shot hole.

The cleaning out and shooting of the old No. 2 William Martin, near Garrett, Floyd County, evidently will prove to be a nonpaying proposition. The work is being done by the South Penn Oil Co. and the gauge showed only 17,000 feet of gas after the hole was shot.

Wolfe County

McCoun & Wissing are at 1,400 feet in No. 1 Shelby Ross on Still Water. The operation is about 25 feet in sand with tools hung. There is a small showing of oil in the hole. Jim Hollon has halted operations in No. 2 George Lovelace, on Trance Fork of Still Water at 2,300 feet.

Knott County

The Kentucky-West Virginia Gas Co. is below 1,050 feet in No. 553 on the Isom Gibson farm in Knott County, and is spudding No. 5228 on the Mancy Johnson land on Caney Fork, at 40 feet. The same firm is down 450 feet in the slate in No. 556 on the John Layne farm. Kentucky-West Virginia has reached the 1,008-foot level in No. 554 Lark Sione, on Jones Fork.

Inland Gas Corp. is below 2,004 feet in No. 1 Ritter Short, on Wiley Fork, Troublesome Creek, with drilling continuing in Big Lime. The same firm is 85 feet in slate in No. 2 E. A. Hammonds land on Right Fork of Troublesome Creek, and is working on rig for No. 3 R. C. Kilgore, nearby.

Floyd County

Inland Gas Corp. is rigging up No. 1 Ollie M. Glenn on Levisa Fork in Floyd County. The Kentucky-West Virginia Gas Co. has reached the 740-foot mark in Salt sand in No. 555 on Grover Jervis land on Home Branch of Buffalo Creek.

Martin County

Kentucky-West Virginia Gas Co. is 110 feet in sand in No. 5225 on the C. W. Preece farm on Coldwater Fork in Martin County; is idle at No. 5226 on the same farm, and is at the 935-foot level in No. 5227, which is also located on the same property.

A number of operations are under way in eastern Johnson County in the Ivyton dome oil pool. Quite a few good producing wells have been drilled in the past in this area including 18 wells in the vicinity of Fish Trap. The underlying oil and gas sands include the Maxon, Big Injun, Wier, Berea, Gas Shale, and Corniferous lime, all of which have been penetrated and shown to be productive in varying quantities. The underlying Clinton and Trenton sands, not as yet reached, are believed to be productive although main developments have been in the Wier and Berea sands.

The new work in progress in Johnson County includes a test on the F. M. Tackett land on McCarty Fork, a mile from Fish Trap; one on the Leander Webb farm near the mouth of Hargis Creek; another is being drilled on the ridge between the Hargis land and Little Mine Fork waters; a rig is being moved onto the Forest Colvin land on McCarthy Fork and the Wheel Oil Co. of Ashland has acquired a location on Main Big Pain Creek. Still another well will be drilled on Little Paint Creek between the new Wheeler well and the mouth of Hargis Creek.

This activity in Johnson County started less than three months ago and much interest is being manifested by representatives of larger companies who hold acreage in the area. The strata in Johnson County are easy to drill, with only one string of casing ordinarily being used at the average depth of 400 feet. Water is seldom found below the first casing joint. The roads in the section are good and passable.

Powell County

In Powell County, Wireman Brothers have shut down No. 2 James Bellamy, on South Fork, for repairs with the hole down 200 feet. B. & B. Oil Co. is down 150 feet in No. 7 Frank Rogers, at Mountain Springs.

Lee County

Evans Oil & Gas Co. is drilling at 990 feet in No. 14 J. F. Raines. C. E. Townsend, agent, is below 300 feet in No. 6 Andrew Combs. C. G. Mayes is at 800 feet in No. 1 Medley S. Cole, on Little Sinking. Rush Cable is at 800 feet in No. 1 Lafayette Noe on Little Sinking. McCann & Wisner are rigging up No. 4 Andrew Combs.

Magoffin County

C. J. Sipple & Co. is moving rig to William Salyers land on Birch Branch in Magoffin County. Bed Rock Petroleum Co. is moving rig to location for No. 10 William Prater, on Prater Fork of Mash Fork.

WESTERN KENTUCKY

OWENSBORO, Ky., Aug. 23.—On the Hollis Howell lease one-half mile south of Livermore, McLean County, and 1 mile west of the Hardin pool, Culbreth and others drilled deeper in their No. 1, which came in a gas well last September at 1,130½ feet. The Jett sand topped at 1,126 feet was penetrated to 1,152 feet and the well is flowing naturally. This well is not an extension of the Hardin pool, as there are three dry holes between it and the pool.

Hancock County

Easton district: W. E. Hupp and others No. 3 J. Easton is a 50-bbl. well in 35 feet of Jackson sand. J. C. Ellis No. 18 Link Richards was drilling at 200 feet. W. E. Hupp and others No. 3 Emma Pool was spudding.

Pellville district: C. D. Walker No. 1 Cicero Phillips was drilling at 430 feet. Frank Damron and others No. 1 Heffner heirs was drilling at 395 feet.

Tell City district: Kentucky Natural Gas Co. No. 2 J. C. Adams was a dry hole, total depth 725 feet.

Floral district: Kentucky Natural Gas Co. and others No. 1 Edward Fuchs, total depth 750 feet, and Frank Damron No. 3 H. C. Emrich, total depth 750 feet, were dry and abandoned.

Ohio County

Friendship Church district: A. Teller and others No. 2 A. S. Edge was a dry hole through Barlow sand, total depth 658 feet.

Collier district: J. C. Ellis No. 4 J. H. Evans was dry through Barlow sand, total depth 655 feet.

Adaburg district: B. & B. Oil Co. No. 20 Tom Westerfield started at 20 bbls. per day from Barlow sand, total depth 737 feet.

Dundee district: Porter Evans No. 1 W. Claude Schultz was good for 190,000 feet of gas from Jackson sand at 510-25 feet, total depth; No. 2 W. Claude Schultz was spudding in.

Taffy district: J. C. Ellis No. 16 B. L. Gossett found Jett sand dry and is going to the Barlow sand. Bondell and others No. 1 Alonzo Crow was dry and abandoned; Stray sand was penetrated to 455 feet.

Heflin district: Kentucky Natural Gas Co. No. 4 R. P. Cox was rigging up.

McLean and Ohio Counties

Hardin pool: The Petroleum Co. No. 13 Mrs. Bettie Cullen is a 50-bbl. well in Jett sand at 1,131-51 feet. O. Jenkins No. 3 W. L. Tichenor lost the hole at 130 feet and the rig was skidded and a new hole is spudded.

McLean County

Island district: South-Penn Oil Co. No. 1 H. K. and John Kirtley pumped 40 bbls. of oil the first 24 hours from Jett sand at 1,414-34 feet.

Butler County

Huntsville district: Harry Watson and others No. 1 Mrs. Opal Harper quit drilling at 519 feet and moved the rig. The lease is in litigation.

Daviess County

Utica district: Daugherty & Ellis No. 2 Clarence Leet is a dry hole in Jett sand at 1,105-55 feet, total depth 1,175 feet.

Ickes to Be Chief Speaker at I.P.A.A. Meeting

With every indication that this year's annual meeting of the Independent Petroleum Association will be the largest national convention ever held by the organization, elaborate plans are being made for the three-day sessions, October 14, 15 and 16, during the week of the Oil-World Exposition at Houston, Tex. Harold L. Ickes, secretary of the interior, will be the main speaker at the annual banquet, Friday evening, October 15.

Over 18,000 invitations have been sent to members of the Independent Petroleum Association. In addition to the annual business meeting and election of officers, the program will include addresses by speakers who have made a thorough study of different problems confronting the industry. The present officers of the association are: Charles F. Roeser, president; H. B. Fell, executive vice president; Russell B. Brown, general counsel; T. J. Stewart, assistant to the president, and C. E. Buchner, executive manager.

Reduced railroad fares have been arranged for by the Oil-World Exposition and those planning to attend the Independent Petroleum Association meeting may obtain a reduced fare certificate by addressing an application to Ed Lenzner, general manager, Oil-World Exposition, Inc., Petroleum Building, Houston, Tex.

Other association meetings are being arranged by the association conventions committee under Chase Sutton, chairman, and E. G. Lenzner, assistant chairman. In addition to C. E. Buchner, who has charge of the meeting of the Independent Petroleum Association of America, the committee consists of William V. Vietti, for the American Institute of Mining and Metallurgical Engineers; Carl Hickman for the American Petroleum Institute, Gulf Coast division; Phil F. Martyn for the Houston Geological Society; W. B. Preston for the American Society of Mechanical Engineers; T. G. Price for the transportation department meeting; A. T. McDannald in charge of the drilling contractors meetings; James Anderson, vice president, Humble Oil & Refining Co., and George A. Hill, Jr., president, Houston Oil Co. In addition to association meetings there will also be several specialized technical conferences such as that planned by the refining committee which covers three days.

Anglo-American Test

Anglo-American Oil Co.'s first drilling project in England has succeeded in drilling below 2,300 feet. The test is in Sussex, near the village of Hellingly on Grove Hill.

TWO YOAKUM COUNTY TESTS MAY RESULT IN NEW POOLS

By L. E. BREDBERG

FORT WORTH, Tex., Aug. 23.—Promise of commercial production in a rank wildcat in Yoakum County, 8 miles west of the Bennett pool, overshadowed important developments of an active week in the West Texas Permian Basin district. This well, Bohago Oil Co. and Bond Oil Corp. No. 1 West, in C SE NW section 606, Block D, John H. Gibson Survey, filled 650 feet with oil of 30.7 gravity in two hours from total depth of 5,255 feet in lime, after drilling with rotary had halted at that point. Late last week the hole was bailed dry and tested only a small amount of oil and gas at total depth of 5,183 feet. It was deepened to present depth, with increase in pay apparently encountered within the last 30 or 40 feet. It was being treated with acid last week-end and was scheduled to make first production tests early this week.

Aside from the fact that a new oil field might be developed as a result of the showings encountered by the above test, it is significant that commercial production, if developed, apparently will have been found at a level in the big lime section somewhat below the pay zones found in previously discovered pools in Yoakum, Gaines, Cochran and Hockley counties.

A second wildcat producer in southern Yoakum County also is indicated in Denver Producing & Refining Co. No. 1 Whittenburg, NW cor. section 831, Block D, Gibson Survey, about 6 miles northwest of the Wasson pool in Gaines County. It showed saturation, with some gas, in lime from 4,847-80 feet, and is swabbing through tubing to test, with total depth 5,015 feet in lime. The Texas Co. No. 1 Walker, approximately 3 miles west of the Denver well, and in section 794, is drilling below 4,890 feet in lime with no shows encountered to that depth.

Second Good Well in Wasson

Amon G. Carter No. 2 Sharp, in the SW cor. section 47, Block AX, Public School Land Survey, in the Wasson pool in Gaines County, has been completed flowing 1,172 bbls. of oil in 24 hours through tubing after treating with a total of 9,000 gallons of acid at total depth of 5,000 feet in lime. It is 1 mile due south of Continental Oil Co. No. 1 McCarty-Moore, which flowed 195 bbls. of oil in one hour after treating with acid at total depth of 4,995 feet. No further gauges have been reported since the one-hour test.

Phillips Petroleum Co. and I.T.I.O. Co. No. 1 Brand, in section 55, about 1¾ miles northwest of Wasson discovery well, swabbed as much as 10 bbls. of oil hourly after treating with acid at total depth 4,927 feet, then pulled tubing and is drilling ahead.

Amerada Petroleum Corp. No. 1 Mathews, 1½-mile southwestern outpost in the Wasson area, swabbed 8 to 10 bbls. of fluid an hour after treating with acid at total depth 5,018 feet in lime, but continued to show some water. This test apparently picked up some bottom-hole water between 5,001-18 feet. Its total depth, however, lacks a few feet of being as deep, subsea, as Carter No. 2 Sharp, in section 47, mentioned above, which apparently showed no water.

Amon Carter has staked location for his No. 2 Brand, to be drilled immediately, in the NE cor. SE quarter of section 54, Block AX, Public School Land Survey, one-half mile due north of Amerada No. 1 Mathews and 1 mile west of the Wasson discovery well.

Argo Oil Co. No. 1 Jones, western Gaines County wildcat in section 2, Block A-7, P.S.L. Survey, shut down for orders at total depth 5,158 feet in lime, making 1½ bailers of sulfur water an hour with a small show of oil. Four miles to the south Continental Oil Co. No. 1 Jones swabbed mostly water after plugging back to 5,020 feet and is plugging back further.

In the Seminole area in Gaines County, Ohio Oil Co. No. 1 Averitt, west offset to the Seminole discovery well, is drilling below 2,000 feet. A new wildcat, on acreage formerly held by Ralph Gill of Midland, is rumored as planned soon, about 5 miles east of Seminole.

Verdict is due soon on Stanolind Oil & Gas Co. No. 1 Slaughter, 2½ miles southeast of the Texas Co.'s discovery producer in Hockley County. It is drilling below 4,825 feet in lime, with pay expected above 5,000 feet. Nine miles east of the Stanolind well, Frank Bates No. 1 Lockett, in section 5, Block I, P.S.L. Survey, is drilling below 2,700 feet after topping anhydrite at 2,250 feet, with elevation of 3,453 feet. The anhydrite marker was encountered approximately 100 feet lower than same marker in the Stanolind No. 1 Slaughter.

Sand Hills Ordovician

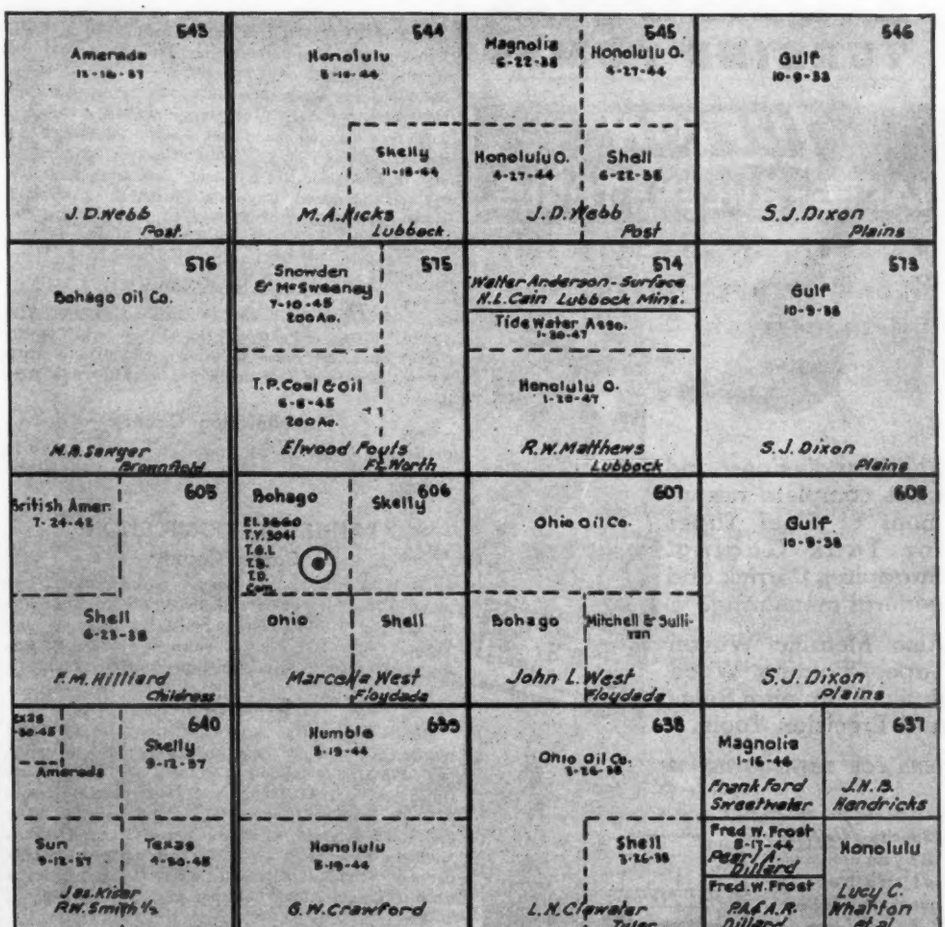
Interest in the Sand Hills Ordovician pool in western Crane County was heightened last week as Loffland Brothers No. 3 Tubb, 1½ miles southeast of Gulf No. 5 Waddell recent Ellenberger lime completion, topped the Simpson formation high at 5,790 feet, then topped the Ellenberger lime at 5,803 feet, considerably higher than in Gulf No. 5 Waddell. Seven-inch casing was cemented in the Loffland Brothers' well at 5,722 feet after it cored to total depth 5,871 feet. Ellenberger cores recovered showed saturation and excellent porosity, causing observers to prophesy that it would make a bigger well than Gulf No. 5 Waddell, which flowed at the rate of 8,179 bbls. daily.

Meanwhile, however, only one-half mile east and slightly north of Gulf No. 5 Waddell, the unit test being drilled by Sinclair Prairie Oil Co. and others on the No. 2 Tubb-Unit location, topped Simpson at 5,841 feet, about 28 feet lower than the Gulf well, but then cored ahead to 6,012 feet with Ellenberger not yet topped.

An unusual development was recorded in the North Cowden pool in Ector County last week. Stanolind Oil & Gas Co. No. 2 J. M. Cowden, second well drilled in the field by the old Southern Crude Oil Purchasing Co., later absorbed by Stanolind, and completed in April of 1931 for initial flowing production of 450 bbls. daily, naturally, was deepened 18 feet to new total depth of 4,319 feet, shot with 490 quarts of nitroglycerin, then flowed 2,301 bbls. of oil in 24 hours to rate as largest well in the North Cowden pool. This old well was the only well in the field which had not been shot with nitroglycerin.

M. L. Benedum, of Benedum-Trees, Inc., has staked location for an Ordovician test in northwestern Pecos County, in section 9, Block 8, H.&G.N.R.R. Survey, on land owned in fee by his partner, J. C. Trees.

General Crude Oil Co. No. 1 Kloh, Reeves County



Southwest Mapping Co., Fort Worth

The Bohago Oil Co. No. 1 Marcella West promises to open a new oil field in Yoakum County. Total depth is 5,255 feet, in lime. The well bailed 5 bbls. of oil after standing two hours, the operators will acidize in order to develop commercial production

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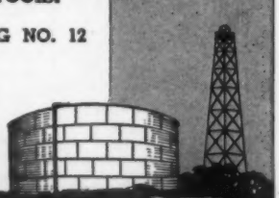

THE LUFKIN RULE CO.
SAGINAW, MICHIGAN
106-110 Lafayette St., New York City

wildcat which had promised commercial production from Delaware sand at total depth 3,294 feet, is drilling below 3,400 feet. It showed considerable water after shooting with nitroglycerin at the former depth.

CENTRAL TEXAS COMPLETIONS

Brown County

E. H. Hamilton No. 1 Sewalt, lime 918-26 feet, 2,000 gallons acid, 30 bbls. per day.

Callahan County

Woodley Petroleum Corp. No. 9 Hearn, total depth 802 feet, dry and abandoned.

Coleman County

Brannon & Murray No. 5 Younglove, 1,922-30 feet, 100 bbls. per day.

Eastland County

Hickok Production & Development Co. No. 2 Grover Cleveland, 3,750-3,830 feet, shot wtih 80 quarts, 3,225,000 feet gas. States Oil Corp. No. 5 Henderson, sand 3,411-16 feet, 3,000,000 feet gas.

Jack County

Brazos River Gas Co. No. 5 H. C. Moore, 2,910-50 feet, 60 bbls. per day. Cliff Camp Drilling Co. No. 1 Loving, 3,244 feet, dry and abandoned. W. B. Hamilton No. 1 Moore, 3,302 feet, dry and abandoned. Tom Patton No. 1 Williams, 4,780 feet, dry and abandoned. Mar-Tex Oil Co. No. 3 Jones, 3,033-51 feet, 306 bbls. Mullendore, Berry & Berry No. 4 Clayton (South), 3,073-93 feet and 3,102-50 feet, 350 bbls. per day. L. C. Scott No. 2 J. A. Raley, 3,305 feet, dry and abandoned. Moncrief & Showers No. 1 Luling, 3,400 feet, dry and abandoned. R. C. Veihl and others No. 3 Ezell, 2,930-50 feet, 522 bbls. Yorktex Petroleum and States Oil No. 4 Clayton A, 2,978-3,002 feet, 111 bbls. per day.

Jones County

Brown Eagle Oil Co. and Roberts No. 3 Lewis, sandy lime 1,973-2,001 feet, treated 3,000 gallons acid, 566 bbls. per day. R. B. Farris and others No. 10 Guitar, sandy lime 1,977-2,002 feet, 3,000 gallons acid, 166 bbls. Guitar Trust Estate No. 6 fee, sandy lime 1,965-2,001 feet, treated 2,000 gallons, 1,700 bbls. per day. S. C. Hering No. 1 Jackson, sandy lime 1,970-2,002 feet, 2,000 gallons, 1,000 bbls. per day. T. D. Humphrey No. 4 Guitar A, 2,015 feet, dry and abandoned. King Oil Co. No. 1 C. L. Carter, 1,919-48 feet, shot with 30 quarts, 200 bbls. per day. C. J. Kleiner No. 1 Guitar, total depth 2,251 feet, dry and abandoned. Ungren & Frazier No. 2 Dorsey B, sandy lime 2,135-44 feet, 139 bbls. per day; No. 1 Dorsey G, sandy lime 2,156-72 feet, 2,000 gallons acid, 1,044 bbls. per day.

Shackelford County

N. H. Martin & Son No. 5 G. R. Davis, 1,718-25 feet, 45 bbls. Roeser & Pendleton No. 40 Dawson & Conway, 1,605-18 feet, 280 bbls. Sedwick & McFall and others No. 3-A Sedwick, total depth 510 feet, dry and abandoned.

Throckmorton County

Long & Bedner No. 1 Everett, lime 4,176-4,233 feet, treated 1,000 gallons acid, initial production 10 bbls. per day.

PANHANDLE COMPLETIONS

Carson County

E. W. Means No. 4-B Cooper, pay 2,995-3,070 feet, pumped 703 bbls. per day. Skelly Oil Co. No. 85 Schafer Ranch, pay 3,015-90 feet, pumped 861 bbls. per day. Texoma Natural Gas No. 1-E Smith, pay 2,495-2,655 feet, tested 31,400,000 feet gas, rock pressure 348 pounds.

Gray County

Cities Service Oil No. 7 Crow, pay 3,190-3,270 feet, pumped 709 bbls. per day. Gulf Oil Corp. No. 9 Barrett, pay 3,175-3,293 feet, pumped 480 bbls. per day. Kewanee Oil & Gas No. 12-H Morse, pay 2,574-2,680 feet, pumped 331 bbls. per day. King Oil Co. No. 6 Brown, pay 3,188-3,271 feet, pumped 765 bbls. per day. Magnolia Petroleum No. 17 fee, pay 2,780-2,850 feet, pumped 558 bbls. per day. Stanolind Oil & Gas No. 7 Culler, pay 3,170-3,300 feet, pumped 366 bbls. per day.

Hutchinson County

Drilling & Exploration No. 13 Haile, pay 3,005-60 feet, pumped 292 bbls. per day. Gulf Oil Corp. No. 72 Dial, pay 2,945-3,042 feet, pumped 324 bbls. per day. McIlroy and others No. 4 Haile, pay 2,990-3,064 feet, pumped 811 bbls. per day. Phillips Petroleum No. 12 Perkins, pay 2,925-75 feet, pumped 271 bbls. per day. Rogan Oil Co. No. 1 Kay, pay 3,155-3,230 feet, pumped 775 bbls. per day. Stanolind Oil & Gas No. 6-B Haile, pay 3,015-85 feet, pumped 481 bbls. per day.

Moore County

Panhandle Eastern No. 1-48 Sneed, increase gas 2,645 and 2,961 feet, total depth 3,225 feet, tested 30,800,000 feet gas. Shell-Sinclair Prairie No. 1-C Donelson, pay 2,895-3,040 feet, total depth 3,080 feet, tested 81,100,000 feet gas; No. 1 A. L. Miller, pay 3,050-3,235 feet, total depth 3,259 feet, tested 30,900,000 feet gas.

Wheeler County

Dumar Oil & Gas Co. No. 1 Finley, pay 1,880-1,905 feet, total depth 1,970 feet, tested 27,700,000 feet gas.

NORTH TEXAS COMPLETIONS

Archer County

Alexon Oil Co. No. 1 W. H. Taylor, 461 feet, dry. L. T. Burns No. 3 M. A. Collins, 1,510 feet, dry. William F. Dodson No. 1 Harmonson, 1,001 feet, dry. W. B. Omohundro No. 1 Jake Penartz, 2,006 feet, dry. Stafford No. 2 Dr. G. B. Hamilton, 1,162 feet, dry. The Texas Co. No. 6 F. W. Pollei, 1,230 feet, dry.

Clay County

Foster Minerals, Inc., No. 1 Yarbrough, 3,472 feet, dry.

Cooke County

The Texas Co. No. 1 J. F. Marshall, 6,010 feet, dry. Whitfield and others No. 1 Sharrill, 1,203 feet, dry.

Montague County

Sinclair Prairie No. 18 D. T. Holt, 1,688-1,715 feet, 190 bbls.

Wichita County

L. T. Burns No. 14 First National Co., 3,648-3,870 feet, 1,500 bbls. G. W. Cooper No. 26 W. T. Waggoner C, 1,627-45 feet, 125 bbls. Deep Oil Development Co. No. 12 Munger A, 3,790-3,898 feet, 250 bbls. Hawkins and others No. 3 Goetze, 378-400 feet, 5 bbls.

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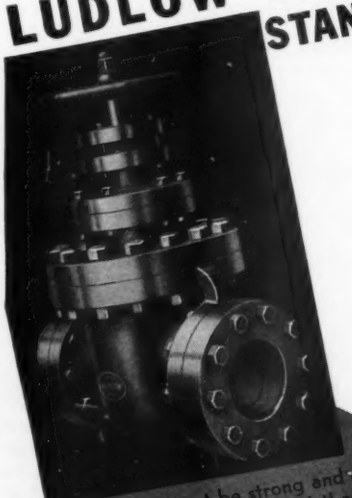

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Young County

Continental Oil Co. No. 1 Ann Brodgen, 3,535-46 feet, 1,411 bbls. Hawkins & Glover No. 4 J. C. Rushing, 830-40 feet, 5 bbls. T. D. Humphrey No. 1 J. M. Lewelling, 4,015 feet, dry. Iron Mountain Oil Co. No. 1 Irene E. McClatchey, 1,110 feet, dry. Stuckey Oil & Gas Co. and others No. 3 R. E. Jones, 550 feet, dry. Underwood Drilling Co. No. 27 Campbell C, 886-98 feet, 45 bbls.

Central West Fields

(Continued from Page 96)

White County

Johnston & Spears were drilling at 215 feet in No. 1 Poorman, NW NE NW section 5-4s-8e, White County.

Clay County

Wicklund Development Co. No. 1 Sanford, SE SE NW section 29-3n-8e, had Cypress sand at 2,789 feet, St. Genevieve lime at 3,067 feet; McCloskey sand at 3,114 feet and was drilling to 3,160 feet. Seven-inch casing was set at 3,095 feet. J. D. Davis No. 1 Volbert, NW SE SW section 12-2n-6e, was coring at 2,953 feet. Duncan Oil Co. No. 1 Carroll, NE NE SE section 8-2n-8e, had Cypress sand at 2,663 feet and was fishing for drill pipe, total depth 2,907 feet. Pure Oil Co. No. 4 Oscar Poppe, SW SW NW section 27-3n-8e, was drilling at 640 feet. Pure Oil Co. No. 3 Sarah Bechtel, SW SW NE section 33-3n-8e, set 7-inch casing at 2,909 feet, total depth 2,962 feet, and was drilling cement after setting a whipstock. Pure Oil Co. was drilling at 263 feet in No. 1 J. H. Smith, NE NE SW section 33-3n-8e.

Marion County

Sigel & Schlosberg No. 1 Roddy, SW cor. SE SW section 20-2n-3e, Marion County, was underreaming to 1,663 feet. Marion Oil Co. was shut down at 400 feet to make repairs at No. 1 Wilson, NE NE SE section 18-3n-3e. Carter Oil Co. No. 1 Metzger, C W half NW SE section 4-4n-3e, is spudded.

Wildcats

Dee & Carter No. 1 Hamilton, NE cor. SW NW section 20-4s-3e, Jefferson County, was at a total depth of 2,914½ feet with 1,000 feet of oil in the hole.

Whitehead & Morey No. 1 Polland, NW SE SW section 26-8n-2w, Bond County, was drilling at 1,585 feet.

Gregory & Mechling No. 1 Foltz, NW SW NE section 31-14n-14w, Coles County, was running 6-inch pipe, total depth 1,048 feet.

Hassett No. 1 Stark, SE SE NE section 18-12n-13w, Edgar County, has an oil sand at 449-502 feet and will be put on the pump to test.

Diamond Half Oil Co. No. 1 Isley, C NW NW section 24-8n-8e, Jasper County, lost the hole at 200 feet and skidded the rig 15 feet south.

J. H. Forrester No. 1 fee, C W half SW NW section 5-6s-1w, Perry County, was drilling at 5,115 feet.

In Vigo County, Indiana, Carter Oil Co. No. 1 Paddock,, C S half SE NE section 16-10n-10w, was plugged back from 2,190 feet to 2,150 feet.

OHIO

FINDLAY, Ohio, Aug. 23.—Production activities in Ohio during the past week reached another new low as far as completions are concerned. However, an encouraging number of new locations enhanced by the near completion of many drilling wells should definitely increase the number of Ohio completions and amount of Ohio production in general.

In Northern Ohio, the Clinton gas fields were without completions except for a dry hole in section 5, Clinton Township, Wayne County. It is the Ohio Fuel Gas Co. No. 1 Lester E. Cady. The Clinton sand was at 2,969-94, with a total depth of 3,048 feet. The hole was plugged and abandoned.

The principal new oil well of the week seems to be the Preston Oil Co. No. 1 R. L. Jones, in section 10, Jackson Township, Knox County. The well made 58 bbls. of oil the first 24 hours after a shot. The oil was found in the Clinton sand at 3,081-3,125 feet.

In Stark County, Chamberlin & Gardiner No. 1

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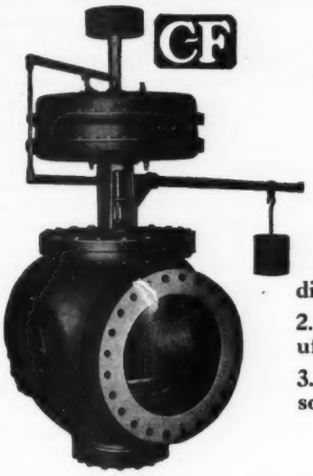

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Charles E. Dillon, section 21, Plain Township, was a commercial gas well in the Berea sand at 756-78 feet. The well gauged 701,000 feet of gas and was shut in on the casing. The rock pressure was reported at 230 pounds.

In Licking County, two small oil wells are reported. Armbruster & Stricker No. 9 Sarah Patton heirs, in section 6 of Perry Township, made 7 bbls. of oil and gauged 33,000 feet of gas in the Berea sand at 646-58 feet. Debout & Sons No. 2 Artie Eschelman, section 4 of Newton Township, made 2 bbls. of oil in the Berea at 677-86 feet.

In Noble County, Chaseville Oil & Gas Co. No. 2 D. G. Steele, section 7, Wayne Township, was completed as a commercial gas well that gauged 168,000 feet. Some gas was encountered in both the Injun and Berea sands. In Elk Township, of the same county, Metcalf and others No. 1 Cath. Young, section 28, made 2 bbls of oil the first 24 hours after a shot. The well was shot in the Germantown sand at 1,077-86 feet. At 981-1,010 feet 41,000 feet of gas was encountered above the Germantown in the Stray sand.

In Perry County, the Allegheny Oil Co. No. 10 Mary Monahan, section 33 of Pleasant Township, made 5 bbls. of oil in the Berea sand at 1,096-1,116 feet, with a total depth of 1,121 feet.

In Athens County, Barrows Oil Co. No. 2 Phoebe Barrows, section 3, Rome Township, made 303,000 feet of gas naturally in the Keener sand at 1,000-01 feet. In section 16 of the same township, Williams Brothers No. 2 Iva L. Morrison gauged 105,000 feet of gas in the Salt sand at 940-51 feet. The total depth of the hole was 1,047 feet and the shut-in rock pressure was 290 pounds. J. V. Bowman No. 2 R. A. Smith and others in section 12, Canaan Township, gauged 65,000 feet of gas in the second Berea sand after it was shot. The sand was at 1,430-45 feet.

In Meigs County, the only reported completion of the week was the Meigs Development Co. No. 1 Harry C. Fisher in section 32, Lebanon Township, which was a dry hole in the first Berea sand at 2,074-78 feet, with a total depth of 2,085 feet.

In Guernsey County, Roy Hammond No. 1 Alfaretta Meredith, section 30, Londonderry Township, was plugged and abandoned after a hole full of water was encountered in the Berea sand at 1,223-80 feet. The total depth was 1,312 feet and no oil or gas shows were found. In section 30, Oxford Township, of the same county, George Jewell and others No. 2 G. K. & M. E. Smith was plugged and abandoned as a dry hole in the Berea at 1,396-1,403 feet, total depth 1,435 feet.

In Belmont County, the Home Utility Co. No. 9 J. E. Grimes, section 32, Wayne Township, was plugged and abandoned as a dry hole in the Keener sand at 1,360-76 feet. A small show of gas was drowned out by water.

In the Lima field, Davis, Jones & Co. completed a 5-bbl. well after a shot at 1,206-53 feet in No. 1 W. T. Agerter, SW quarter section 5, Amanda Township, Allen County. Ellarmfro Oil & Gas Co. has a 50-bbl. initial producer in No. 3 W. P. Gierhart (J. Poe) NW quarter section 23, Blanchard Township, Putnam County. Pay was topped at 1,332 feet, total depth 1,392 feet. Lika Cride Oil Corp. is trucking oil from this lease.

California Fields

(Continued from Page 110)

in the Santa Maria Valley field are scheduled for production tests within the next few days and consequently we may see the completion of two or more wells during the next week. In the Ventura Avenue field of Ventura County, Tide Water Associated Oil Co. is working on an interesting deep well which should be ready for a production test within a few weeks. This well is No. 137 Lloyd, rotating ahead in oil sand at 8,705 feet and scheduled for completion in the deep 57 zone which has proven highly productive in several wells. General Petroleum Corp. is making rather slow progress in its redrilling job in No. 13 Barnard which was originally bottomed in the 57 zone at 9,484 feet but which necessitated some reconditioning work due to an excessive production of water along with oil. In the Rincon field of Ventura County, Chansior Canfield Midway Oil Co. provisionally completed No. 15-B Hobson but subsequently killed the flow, 147 bbls. of clean 29.1-gravity oil, in order to perforate a blank liner between 4,160 feet and 4,313 feet.

Gas Wells

The Buttes Oilfield, Ltd., has listed No. 4 in section 2-15-1 as a gas completion and will resume work on No. 2. No. 4 bottomed at 5,850 feet and finished with 177 feet of 5¾-inch liner including 90 feet of perforated, was brought in flowing 21,000,000 feet of gas per day. After being shut in pressures rose to 900 pounds on the tubing and 950 pounds on casing. This company has been engaged in development work in the Marysville Buttes area for several years and has established a record for persistent effort. In the Rio Vista gas field of Solano County, Amerada Petroleum Corp. picked up the top of the productive gas zone in No. 1 Neil Hamilton at 4,040 feet and has subsequently cemented a string of 7-inch at 4,450 feet. The company's No. 1 J. C. Hamilton finished a few weeks ago at 4,429 feet has not yet been given a potential test but should prove to be a large well as it is showing a pressure of 1,725 pounds on both tubing and casing. Standard Oil Co. No. 1 Hooper in the Woodland area of Yolo County in section 32-9-1 was given a formation test early in the week with the hole open at 3,658-3,714 feet and showed a recovery of approximately 7,000,000 feet of gas. The company resumed drilling and the bit is at present rotating at 3,800 feet. Standard has just completed a rig for No. 1 Cook, a wildcat, in section 32-12-1.

Lost Hills-Belridge

Tide Water Associated Oil Co. has picked up the top of the Wagonwheel zone in No. 6 Reward in the North Belridge field at 8,120 feet and a string of 7-inch was landed and cemented at this point. It will probably be bottomed a little below 8,400 feet and should show substantial production from the Eocene. General Petroleum Corp. has taken over the St. Helens lease in section 12-28-20, about midway between North and South

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Belridge fields and has staked location for a wildcat. Drilling operations are being resumed in the extreme western end of the Lost Hills field where shallow production of 14.5-gravity oil has been developed in small quantity. Work in this area up to the present time indicates that the productive formation contains water and operators apparently feel that it is worth developing, notwithstanding this handicap. Tide Water Associated Oil Co. which discovered the shallow production a few years ago has concluded drilling operations on No. 9-R-3 in section 2-26-20 at 1,631 feet and it should be completed within another week or 10 days. The Texas Co. is expected to begin work on a new well in this district within another few weeks as its last completion was good for about 100 bbls. per day.

Gulf Coast Fields

(Continued from Page 95)

choke with tubing pressure 1,925 pounds and casing pressure 2,025 pounds.

On the north flank of the West Columbia field, recently opened for development by Texas Co. and Sterling Oil & Refining Co. No. 1 Phillips that opened production from the Frio sand, the same two companies' No. 2 Phillips is bottomed at 5,636 feet and screen is being run for a production test. In the same area, Texas Co. No. 16 Abrams is bottomed at 5,604 feet with 7-inch casing cemented at 5,490 feet.

Palacios Field

The second distillate producer for the Palacios field, Matagorda County, has been finished by Atlantic Refining Co. at No. 1 Palacios State Bank, which extends production a mile west. Bottomed at 7,935 feet, perforations were made in the 7-inch casing at 7,862-80 feet and it flowed an estimated 100 bbls. of 60-gravity distillate per day with tubing pressure 2,600 pounds and casing pressure 1,600 feet. Same company's two other operations are being reworked. No. 2-A Foley flowed by heads through perforations at 7,850-68 feet and has been killed to recomplete, while No. 1 Rohls, 1,400 feet southwest of the discovery, is fishing for stuck drill stem at a total depth of 8,843 feet.

Republic Production Co. and Houston Oil Co. No. 4 Hurd, 933 feet north of No. 3 Hurd, a producer tested salt water on a production test from a screen setting made at 7,635-58 feet, the total depth. Screen is being pulled and the well will no doubt be recompleted. It is bottomed in the regular producing horizon and is the first test to show salt water.

In the Magnet field, Wharton County, Humble Oil & Refining Co. No. 1 H. C. Cockburn has been completed for an initial production of 18 bbls. per hour through a quarter-inch choke, making it one of the best producers completed. The hole is bottomed at 5,550 feet with 5½-inch casing cemented at 5,545 feet. It is a direct offset to Atlantic Refining Co. No. 1-B Cockburn.

Houston Oil Co. and Republic Production Co. are moving in material for a second test on the South Call Prospect in Newton County. It is No. 1 Peavy-Moore and is located southeast of a dry hole in the H.&T.C. Survey, section 42. Between the Keran and Placedo fields, Victoria County. Material is being moved in for an interest test to be drilled by Stanolind Oil & Gas Co. on the Henderson & Pickering tract in the Eugene Benavides Survey.

East Texas Fields

(Continued from Page 92)

bbls. in 10 minutes. M. G. R. Oil Co. No. 2 N. Green, 3,795-96 feet, 60 bbls. per hour. Magnolia Petroleum Co. No. 41 J. R. Wright, 3,647-49 feet, 30 bbls. in 15 minutes. Texas Canadian No. 7 S. S. Cook, 3,765-66 feet, 40 bbls. per hour.

TALCO FIELD COMPLETIONS

Franklin County

Stroube & Stroube No. 4 Prince, 4,218-64 feet, flowing 30 bbls. per hour.

Titus County

Byar and others No. 3-A C. W. Belcher, 4,250-4,310 feet, pumped 600 bbls. in 34 hours. G. M. & W. No. 4 Edwards, 4,256-4,315 feet, pumped 200 bbls. in 24 hours. Hinton and others No. 1 L. Stevenson, 4,170-4,321 feet, pumped 210 bbls. per day; No. 13 Wilson, location abandoned. Humble Oil & Refining Co. No. 4 Batson, 4,185-4,336 feet, pumped 453 bbls. per day; No. 5 J. R. Milligan, 4,195-4,296 feet, pumped 97.6 bbls. per day. Magnolia Petroleum Co. No. 11 K. Mainard, total depth 4,309 feet, pumped 252 bbls. per day. R. E. Moore, trustee. No. 1-C Edwards, 4,265-4,302 feet, pumped 315 bbls. per day. Tide Water No. 3 C. M. Carr, 4,210-67 feet, pumped 201 bbls. per day; No. 7 L. H. Wilson, 4,230-86 feet, pumped 289 bbls. per day.

Sulphur Bluff Field—Hopkins County

F. D. Jones Drilling Co. No. 3 Bassham, 4,502-35 feet, pumped 420 bbls. per day.

Fitts District Sets Pace

(Continued from Page 108)

3,021-32, 3,088-92 and 3,094-3,110 feet. The well has not been officially completed, but other tests have been started in the area.

The Citra area of southwestern Hughes County, north of Centrahoma and northeast of Fitts, probably will see further development in the near future. The discovery well, which has not been completed, is Carter Oil Co. and others No. 1 Hamilton, C W half NE SW section 33-4n-9e. It recently was acidized for the third time after perforating casing from 5,834 feet to 5,877 feet and swabbed 111 bbls. of oil net in 14 hours, cutting 10 per cent. It was bottomed at 6,172 feet, flowed salt water, and plugged back to 5,989 feet.

Other Wildcat Tests

Several other wildcats are being drilled or are preparing to drill in the general vicinity of the Fitts district, and in counties to the south, east and west. These include:

Caloma Oil Co. No. 1 Brentz, SE SE SW section 4-1n-6e, now shut down at 1,010 feet; Norbla Oil Co. No. 1 McBride, NE NE SW section 10-2n-5e, drilling ahead; Kerlyn Oil Co. No. 1 Pratt, SW SE NE section 6-4n-4e, drilling ahead; Boettcher Oil & Gas Co. No. 1-A Gann, SE NW NE section 25-4n-7, fishing at 4,347 feet; and Union Development Co. No. 1 Abbott, SW NW NE section 34-3n-6e, drilling ahead, all in Pontotoc County.

Power Oil Co. and others No. 1 Lancaster Trust, C SW NE section 10-1s-2e, fishing at 3,714 feet; O. O. Owens No. 1 Fryer, NE SE NE section 34-1s-3e, shut down at 2,574 feet, with water in the hole; and Meyer & Greenup No. 1 Arbuckle, NW NW NE section 18-2s-3e, spudded and shut down, all in Murray County.

Patton and others No. 1 McCrummens, SW SW NE section 16-1s-6e, shut down at 1,165 feet, and W. T. Shelton No. 1 Chapman, C NW NW section 26-4s-6e, waiting on cement after setting surface casing, both in Johnston County.

C. M. Sheldon and Gardner Petroleum Co. No. 1 Lee, NE NW SW section 2-4s-10e, rigging up, and A. L. Larson No. 1 Mason, SW SE SE section 35-1n-4e, rigging up, both in Atoka County.

Erle Halliburton and others No. 1 Bagwell, SW NE NE section 30-3s-15e, Pushmataha County, total depth 3,650 feet, crooked hole, plugged back and running Eastman survey.

Paul Robb and others No. 1 Vittitoe, C NE SE section 11-5s-4e, an old Marshall County well bottomed at 5,461 feet, shut down for many months and now cleaning out.

Southern Oil Co. No. 1 Henry, NW NE section 10-8s-7e, location in Bryan County.

V. K. Chapman and T. N. Lows No. 1 Hallum, NW cor. section 4-7s-20e, Choctaw County, spudded and shut down.

Wicklund-Ogemaw Negotiations

WEST BRANCH, Mich., Aug. 23.—The news feature of the week in the Michigan oil industry is confirmation of reports of negotiations under way between the J. V. Wicklund Development Co. and the Ogemaw Crude Oil Co., which are expected to result in the acquisition of the entire assets of the latter concern by the former.

The assets of the Ogemaw Crude Oil Co. include 13 producing wells and 8 undrilled offset locations in the heart of the West Branch pool in Ogemaw County, and interests in producing wells and acreage in the new Salem Traverse pool in Allegan County, which, together with other acreage holdings, are conservatively valued at approximately $311,000. Under the terms of the proposal now being negotiated, the transfer will be effected chiefly through the exchange of stock on the basis of relative book values as established by audited statements, according to the legal representatives of the concerns.

Norman R. McKee, vice president of the Southern Counties Gas Co. and director of sales and advertising, was elected president of the Pacific Coast Gas Association at the annual meeting held recently in Seattle, Wash.

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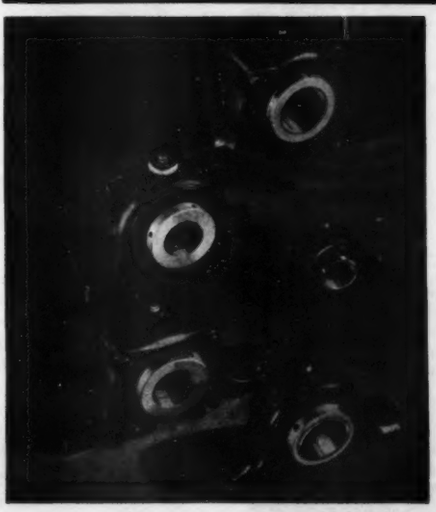

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Aug. 21.—One the Moose dome, west of Calgary, Alberta, Moose Oils No. 2, LSD 8, section 29-22-6w5, bottoming in the Devonian limestone at 1,553 feet has completed a bailing test which indicated potential production of 100 to 125 bbls. a day. Production is a black crude of around 48 gravity, with about 1,500,000 feet of gas per day, which is expected to flow the oil when the 16-inch hole is tubed.

The Moose dome structure is about 40 miles west of Calgary, and considerably northwest of the Turner Valley field. A test previously drilled by Moose Oils a half mile farther south in the same section encountered a heavy wet gas flow in the Devonian limestone, but owing to a fishing job the hole could not be completed. The potential field, covering several thousand acres, is in isolated and heavily timbered foothill country. On the crest of the structure the Madison limestone, the main producing horizon of the Turner Valley field, is completely eroded, bringing the Devonian within easy reach of the drill. Moose No. 2 is the first test in Alberta to get production in the Devonian.

Turner Valley Field

In the West Central area, Turner Valley, Mercury Oils No. 8, LSD 3, section 4-19-2w5, offsetting Royalite Oil Co. No. 3 Sterling Pacific to the north, got the Madison limestone at 5,516 feet, and cemented casing in the lime at 5,547 feet.

In section 28-18-2w5, Richland Royalties No. 3, LSD 14, which got the Madison at 5,607 feet, is below 5,987 feet with about 3,000,000 feet of wet gas and strong shows of green crude. It will be finished within a few days, and looks like a fair crude producer.

In the same section, Carleton Royalties No. 2, LSD 2, with production around 20 bbls. a day from the limestone, has been given acid treatment and is making around 70 bbls. a day.

West Side Drilling

In section 32-18-2w5, Royal Crest Petroleums No. 1, LSD 9, is below 5,551 feet. West Turner Petroleums No. 1, LSD 2, is spudding below 20 feet. West Flank No. 3, LSD 8, is below 640 feet.

In section 28-18-2w5, Four Star Petroleums No. 1, LSD 13, is below 5,328 feet. Three Point Petroleums No. 1, LSD 12, is below 4,900 feet. Richland Royalties No. 2, LSD 5, has resumed from 5,120 feet after running casing to 5,000 feet. Model-Spooner-Reward No. 1, LSD 4, is below 5,525 feet and expected to get the Madison lime around 6,400 feet.

In section 29-18-2w5, Granville Oils No. 1, LSD 16, got the Home sands at 6,313 feet and is below 6,400 feet with the Madison expected around 6,900 feet. Commoil No. 1, LSD 15, same section, is below 6,150 feet with the lime expected around 6,800 feet. Share Royalties No. 1, N half LSD 8, is below 6,195 feet with the Home sand expected at 6,350 feet. National Petroleum Corp. No. 1, S half same LSD, is below 5,625 feet. Globe Royalties No. 1, LSD 7, is drilling 16-inch open hole below 1,456 feet after sidetracking lost tools and running casing to 1,402 feet. Davies Petroleums No. 1, LSD 2, is underreaming and carrying 10¾-inch casing to 3,470 feet.

In section 21-18-2w5, Davies-Royalite No. 2, LSD 13, is in a brown sand below 6,305 feet and expected to get the Madison limestone around 6,450 feet.

Brown Oil Corp. No. 2, LSD 8, is below 6,120 feet.

In section 17-18-2w5, Prairie Royalties No. 1, LSD 16, is below 5,880 feet with the lime expected at 6,650 feet.

In section 16-18-2w5, Brown Oil Corp. No. 1, LSD 14, is below 6,028 feet and will probably be the first completing in the southwest extension of the field.

Okalta Structure

On the Okalta fold, west of South Turner Valley, South End Petroleums No. 1, LSD 6, section 36-18-3w5, is in the Fernie shales below 5,105 feet and expected to get the Madison limestone at 5,350 feet.

East Side Drilling

On the New Valley structure, northeast of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is below 8,445 feet with continued shows of oil and gas.

On the Aldersyde structure, Ranchmen's Gas and Oil Co. No. 1, LSD 16, section 13-20-29w4, is resuming from 7,225 feet with samples indicating it is close to its objective. Frequent small oil and gas shows have been encountered in a hard sand, and commercial production is looked for in more porous formation. The test has been drilling intermittently for over 10 years.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, is below 8,074 feet.

On the Duncan structure, Spindletop Oils No. 1, LSD 4, section 1-30-6w5, is drilling 18½-inch open hole below 1,283 feet after getting three gas shows, at 495, 1,075 and 1,270 feet. The last show is believed sufficient to fire the boilers.

On the Kootenay dome west of Calgary, Roxana Petroleums No. 1, section 8-24-7w5, is in the Devonian limestone below 3,138 feet feet with some increase in gas flow.

On the Birch Ridge structure, Elbow Oils No. 1, LSD 11, section 35-22-5w5, is resuming after pulling damaged casing and cementing new pipe at 5,168 feet.

On the Highwood-Sinclair structure south of Turner Valley, Green Valley No. 1 Banner, LSD 6, section 34-17-3w5, is in the Lower Blairmore below 3,055 feet, underreaming and carrying casing, with a further increase in wet gas.

In the Pincher Creek area, Weymarn Petroleums No. 2, LSD 5, section 7-6-1w5, has discontinued drilling at 6,412 feet and rigged up for acid treatment. The hole has been deepened 452 feet since production test was made, and if acid fails to develop commercial production, it will be continued to the Madison limestone.

Taber Field

In the Taber field, southern Alberta, Plains Petroleum Corp. No. 1, LSD 11, section 29-9-17w4, bottoming at 3,302 feet, is waiting for packer equipment to shut off water and test production in the Ellis sand.

Border Fields

On the Lethbridge structure, southern Alberta, Lethbridge Petroleums & Refining No. 1, LSD 12, section 11-8-22w4, is resuming in the Colorado formation from 2,215 feet after running casing. Additional gas shows have been encountered.

Battleview Anticline

On the Battleview anticline in East Central Alberta, Battleview Oils No. 1, NW section 32-47-5w5, bottoming at 1,893 feet, has cemented casing on top of the sand and is drilling in. The main gas shows were encountered at 1,424, 1,625 and 1,710 feet and the oil sand at 1,871 feet. The sand was cored 22 feet, showing heavy saturation and dripping oil. Battleview No. 2 will be started as soon as production test is completed, and wells will also be started at the same time by Pacalta Oils and South End Petroleums, Ltd., which also hold acreage on the structure. The Battleview anticline is 22 miles northeast of Wainwright, and separate from the main Wainwright structure.

In the Ribstone field, Dina Oil & Refining Co. No. 4 is below 200 feet.

In the Clearwater district, northern Alberta, Western Development Co. No. 1, Township 89-3w4, is below 122 feet.

Ontario Drilling

In the Dover field, Kent County, Ontario, Central Pipe Line Co. No. 5, Eli Jubenville farm, Dover West Township, finished a dry hole in the Trenton limestone, and is being abandoned.

In Chatham Township, Kent County, Union Gas Co. No. 14, Lot 8, Concession 13, has spudded. Farther south, Ogletree Syndicate No. 2, Lot 13, Concession 5, which got the granite around 3,830 feet, is deepening below 4,230 feet.

In Raleigh Township, Kent County, Salina Oil & Gas Co. No. 2, SE cor. Lot 12, Concession 15, is rigged.

In Essex County, Eugene Coste & Co. No. 1, SE quarter Lot 5, Concession 8, Tilbury West Township, is below 1,250 feet.

In Perth County, Volcanic Oil & Gas Co. No. 2, NW quarter Lot 28, Concession 6, North Easthope Township, is below 1,250 feet.

In the Petrolia field, Lambton County, McIntosh Oil & Gas Co. No. 1 deep test, Charles Barrett property, Petrolia, is in the Trenton limestone below 3,400 feet.

In the Dawn field, Lambton County, Union Gas Co. No. 92, Lot 12, Concession 8, Dawn Township, finished a dry hole around 2,000 feet.

In the Brownsville field, Oxford County, W. J. Aikens No. 6 has been located in Lot 24, Concession 11, Dereham Township, Patterson & Treleaven No. 2 has been located on the Scanlon farm, Lot 25, Concession 11.

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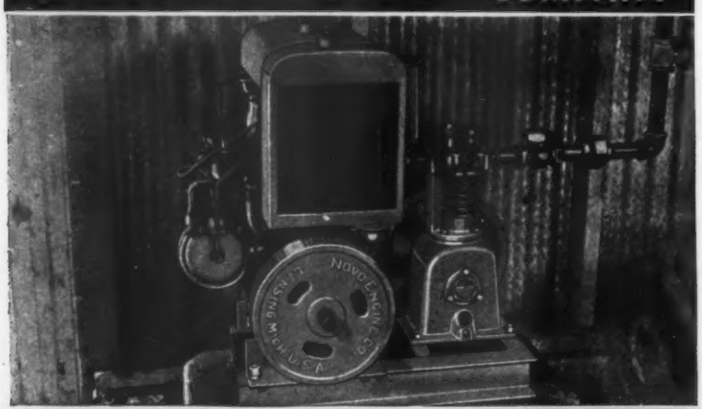

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Shell Oil, No. 1-25 Capitan, Santa Barbara	32- 5-30	2,786	flow. 300 b.d.
Hancock-Bush, No. 1-R Santa Maria, Santa Barbara	25-10-34	5,067	Franciscan
Macrate, A. N., No. 2-F Santa Maria, Santa Barbara	26-10-34	3,770	sd. sh. drlg.
S. M. Oil, No. 1 Porte, Santa Maria, Santa Barbara	27-10-34	3,774	sd. sh. drlg.
Sed Oil, No. 1 Mills, Santa Maria, Santa Barbara Co.	27-10-34	3,364	sd. sh. drlg.
Ohto Oil, No. 1-M Santa Maria, Santa Barbara Co.	21-10-34	2,147	sd. sh. drlg.
Union Oil, No. 2-R Santa Maria, Santa Barbara Co.	21-10-34	3,750	sd. sh. drlg.
Union Oil, No. 1-19 Enos, Santa Maria, Santa Barbara	23-10-34	2,796	pump. 95 b.d.
Union Oil, No. 1 Cook, Santa Maria, Santa Barbara	30-10-33	6,710	br. sh. drlg.
Union Oil, No. 1-B Santa Maria, Santa Barbara	21-10-34	5,325	flow. 1,250 b.d.
Union Oil, No. 4 Battle, Santa Maria, Santa Barbara	24-10-34	1,980	sd. sh. drlg.
Union Oil, No. 2 LeRoy, Santa Maria, Santa Barbara	24-10-35	821	sd. sh. drlg.
Union Oil, No. 19 Orcutt, Santa Barbara Co.	26- 9-34	4,278	pump. 110 b.d.
Crude Oil Drlg., No. 1 Casmalia, Santa Barbara Co.	19- 9-34	480	hd. sd. drlg.
Pac. Western Oil, No. 4 Santa Maria, Santa Barbara	21-10-34	4,521	Franciscan
Rice Ranch Oil, No. 4 Orcutt, Santa Barbara Co.	23- 9-34	4,330	P.B. 3,732
So. Cal. Drlg., No. 1-H Santa Maria, Santa Barbara	9- 9-33	5,003	pump. 100 b.d.
101 Oil, No. 1 Pt. Concepcion, Santa Barbara Co.	35- 5-33	2,362	sd. sh. drlg.
Tide Water A. O., No. 1-L Santa Rita, Santa Barbara	3- 6-33	2,560	br. sh. drlg.
Hancock Oil, No. 2 Los Alamos, Santa Barbara Co.	6- 7-32	5,100	hd. sh. drlg.
Arnold Oil, No. 2 Los Alamos, Santa Barbara Co.	8- 8-33	5,615	sd. sh. drlg.
Del Mar Oil, No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,360	fishing
Texas Co., No. 129 Shiells, Ventura Co.	4- 3-19	3,447	recmtd. 3,402
Texas Co., No. 133 Shiells, Ventura Co.	4- 3-19	3,860	sd. sh. drlg.
Union Oil, No. 16 Bardsdale, Ventura Co.	12- 3-20	5,760	sd. sh. drlg.
Texas Co., No. 1 Pierce, Camarillo, Ventura Co.	20- 2-21	3,457	sd. sh. drlg.
Richfield Oil, No. 1 McFarland, Camarillo, Ventura	13- 2-21	1,490	sd. sh. drlg.
Condor Oil, No. 1 Sespe, Ventura Co.	6- 4-19	2,087	rd. sh. drlg.
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	1,502	rd. sh. drlg.
Williamson Oil, No. 1 Sespe, Ventura Co.	1- 4-20	309	sd. sh. drlg.
Topa Topa Oil, No. 2 Sespe, Ventura Co.	33- 5-19	4,050	idle
Speik Oil, No. 2 Sespe, Ventura Co.	33- 5-19	2,994	sd. sh. drlg.
Colima Oil, No. 2 Sespe, Ventura Co.	25- 5-19	3,400	pump. water
Skyline Oil, No. 1-H Hopper Canyon, Ventura Co.	13- 4-18	851	sd. sh. drlg.
Vai, Giovani, No. 1 Ojai, Ventura Co.	4- 4-21	1,095	recmtd.
C. C. M. Oil, No. 2 Padre Canyon, Ventura Co.	23- 3-24	7,710	O.S. drlg.
C. C. M. Oil, No. 15 Rincon, Ventura Co.	17- 3-24	4,660	P.B. 4,600
C. C. M. Oil, No. 16 Rincon, Ventura Co.	17- 3-24	211	sd. sh. drlg.
Richfield Oil, No. 2 Hobson, Rincon, Ventura Co.	8- 3-24	4,762	recmtd. 4,658
Rincon Pet., No. 1 Shudde, Rincon, Ventura Co.	tideland	3,020	sd. sh. drlg.
Oxnard Oil, No. 1 Oxnard, Ventura Co.	10- 1-22	3,895	sd. sh. drlg.
Vaca Oil, No. 2 Oxnard, Ventura Co.	6- 1-21	2,460	sd. sh. drlg.
Tide Water A. O., No. 28 V.L.W., Ventura, Ventura	26- 3-23	4,420	sd. sh. drlg.
Tide Water A. O., No. 31 V.L.W., Ventura, Ventura	24- 3-23	6,831	cleaning out
Tide Water A. O., No. 30 Lloyd, Ventura, Ventura	27- 3-23	2,241	sd. sh. drlg.
Tide Water A. O., No. 61 Lloyd, Ventura, Ventura	27- 3-23	5,464	sd. sh. drlg.
Tide Water A. O., No. 62 Lloyd, Ventura, Ventura	27- 3-23	5,755	fish. D.P.
Tide Water A. O., No. 125 Lloyd, Ventura, Ventura	27- 3-23	7,700	to deepen
Tide Water A. O., No. 137 Lloyd, Ventura, Ventura	27- 3-23	8,704	O.S. drlg.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	6,064	hd. sh. drlg.
Shell Oil, No. 90 Taylor, Ventura, Ventura Co.	30- 3-23	3,662	sd. sh. drlg.
Shell Oil, No. 35 Gosnell, Ventura, Ventura	28- 3-23	8,962	O.S. drlg.
General Pet., No. 17 Barnard, Ventura, Ventura	23- 3-23	8,176	fish. D.P.
Den Petroleum, No. 1 Devils Den, Kern Co.	20-25-19	4,365	fish. D.P.
Goodrum, George, No. 1-A Baron, Devils Den, Kern	24-25-18	120	sd. sh. drlg.
Tide Water A. O., No. 9-R-3 Lost Hills, Kern Co.	2-26-20	1,631	O.S. drlg.
Texas Co., No. 1-A Overall, Lost Hills, Kern Co.	33-25-20	780	sd. sh. drlg.
East Puente Oil, No. 24-11 McKittrick, Kern Co.	11-30-21	1,308	pump. 31 b.d.
Birch-Ranch Oil, No. 1 Lovett, McKittrick, Kern Co.	10-30-21	723	sd. sh. drlg.
Continental Oil, No. 2 Wasco, Kern Co.	8-27-24	9,740	hd. sh. drlg.
Belridge Oil, No. 43-26 North Belridge, Kern Co.	26-27-20	2,971	sd. sh. drlg.
Belridge Oil, No. 53-26 North Belridge, Kern Co.	26-27-20	4,275	br. sh. drlg.
Belridge Oil, No. 61-26 North Belridge, Kern Co.	26-27-20	5,875	cmtd. 5,872
Belridge Oil, No. 28-1 North Belridge, Kern Co.	1-28-20	6,097	br. sh. drlg.
Tide Water A. O., No. 6 North Belridge, Kern Co.	34-27-20	8,140	cmtd. 8,120
Texas Co., No. 1 Martin, North Belridge, Kern Co.	22-27-20	7,780	br. sh. drlg.
Shell Oil, No. 18 Caldwell, Round Mountain, Kern Co.	7-28-29	1,970	rig. to pump
Honolulu Oil, No. 35 Round Mountain, Kern Co.	20-28-29	1,941	pump. 25 b.d.
Honolulu Oil, No. A Round Mountain, Kern Co.	18-28-29	1,795	pump. 172 b.d.
Honolulu Oil, No. 22 Round Mountain, Kern Co.	18-28-29	1,643	sd. sh. drlg.
Pebble Beach Oil, No. 1 Round Mountain, Kern Co.	16-28-29	1,678	granite
Fremont Oil, No. 1 Olcese, Round Mountain, Kern Co.	26-28-29	2,827	dry; abd.
Tavis, J. J., No. 1 Round Mountain, Kern Co.	4-29-29	2,642	sd. sh. drlg.
Cal-Western Oil, No. 4 C.C., Round Mountain, Kern	12-28-28	1,781	sd. sh. drlg.
Standard Oil, No. 7 Ward, Kern Front, Kern Co.	24-28-27	2,015	rig. to pump
Whittier, M. H., No. 5 Cauley, Kern Front, Kern Co.	16-28-27	3,013	P.B. 2,512
Oils, Inc., of California, No. 7-2 Kern Front, Kern Co.	13-28-27	1,289	P.B. 1,138
Martin, T., No. 1 Sesnon, Kern Front, Kern Co.	17-28-27	2,832	sd. sh. drlg.
California Star Oil, No. 2-80 Kern Front, Kern Co.	22-28-27	2,650	recmtd. 2,293
Texas Co., No. 4 Lehman, Kern Front, Kern Co.	23-28-27	2,770	cleaning out
Shell Oil, No. 1 Bellview, Kern Co.	31-29-27	8,470	sd. sh. drlg.
Kern Drlg., No. 1 R. & R., Kern River, Kern Co.	15-29-28	1,999	sd. sh. drlg.
Palmer & Luse, No. 1 Kern River, Kern Co.	10-28-28	3,030	idle
Fuhrman, A., No. 10 Kern River, Kern Co.	28-28-28	301	sd. sh. drlg.
McKeon, Inc., No. 1-A Kern River, Kern Co.	32-28-28	1,275	sd. sh. drlg.
Ring Oil, No. 1 Rogers, Mount Poso, Kern Co.	29-26-28	1,725	pump. 298 b.d.
Framac Oil, No. 1 Brown, Mount Poso, Kern Co.	22-27-27	1,351	fish. D.P.
Tide Water A. O., No. 2 Newhope, Mount Poso, Kern	29-27-27	2,775	pump. water
Union Oil, No. 12 Tribe, Mount Poso, Kern Co.	28-27-28	277	sd. sh. drlg.
General Pet., No. 1 West Premier, Kern Co.	36-27-26	6,070	dry; abd.
H. & H. Oil, No. 1 Neff, Fruitvale, Kern Co.	23-29-27	3,793	rig. to pump
Western Gulf Oil, No. 7 Red Ribbon, Fruitvale, Kern	27-29-27	3,359	recmtd. 3,310
Western Gulf Oil, No. 26 K.C.L., Fruitvale, Kern Co.	22-29-27	4,002	flow. 138 b.d.
Siemon Bros., No. 1 Krebs, Fruitvale, Kern Co.	15-29-27	3,985	cmtd. 3,863
Simmel, L. C., No. 1 Fruitvale, Kern Co.	23-29-27	3,349	O.S. drlg.
Southwestern Dev., No. 1 K.C.L., Fruitvale, Kern Co.	15-29-27	3,195	sd. sh. drlg.
American Expl., No. 1-G Mountain View, Kern Co.	18-30-29	4,792	P.B. 4,722
American Expl., No. 1-C Mountain View, Kern Co.	18-30-29	4,755	flow. 365 b.d.
Barnsdall Oil, No. 2-N Mountain View, Kern Co.	19-30-29	2,786	sd. sh. drlg.
Mohawk Pet., No. 5 Earl Fruit, Mountain View, Kern	4-31-29	4,877	sd. sh. drlg.
North American Oil, No. 1-T Mountain View, Kern	9-31-29	4,292	sd. sh. drlg.
Hogan Pet., No. 4 Symons, Mountain View, Kern Co.	5-31-29	6,188	P.B. 5,236
Hogan Pet., No. 3 Peters, Mountain View, Kern Co.	5-31-29	5,425	O.S. drlg.
Hogan Pet., No. 10 Porter, Mountain View, Kern Co.	29-30-29	6,015	flow. 1,030 b.d.
Greer, P. H., No. 1 Perrel, Mountain View, Kern Co.	9-31-29	3,790	cleaning out
Greer, P. H., No. 2 Perrel, Mountain View, Kern Co.	9-31-29	6,639	redrlg. 5,440
General Pet., No. 1 Houchin, Arvin, Kern Co.	27-31-29	2,684	sd. sh. drlg.
Arkelo Oil, No. 1 Lerdo, Kern Co.	23-28-26	10,050	redrlg. 7,693
Union Oil, No. 1-34 Rio Bravo, Kern Co.	34-28-25	10,320	O.S. drlg.
Continental Oil, No. 1 Rosedale, Kern Co.	12-29-26	10,210	fish. D.P.
Standard Oil, No. 11-7 KCL, Greeley, Kern Co.	20-29-26	7,550	sd. sh. drlg.
Standard Oil, No. 11-8 KCL, Greeley, Kern Co.	18-29-26	1,710	sd. sh. drlg.
Union Oil, No. 4 San Emidio, Kern Co.	31-11-22	2,070	P.B. 770
Shell Oil, No. 21-14 Old River, Kern Co.	14-30-25	8,613	P.B. 8,325
Shell Oil, No. 4-30 Ten Section, Kern Co.	33-30-26	7,520	sd. sh. drlg.
Shell Oil, No. 61-31-B Ten Section, Kern Co.	30-30-26	1,782	sd. sh. drlg.
Lilly Oil, No. 1 Midway-Sunset, Kern Co.	36-32-23	1,840	sd. sh. drlg.
C. C. M. Oil, No. 25-21 Midway-Sunset, Kern Co.	21-32-23	2,180	cleaning out
C. C. M. Oil, No. 43-21 Midway-Sunset, Kern Co.	21-32-23	1,971	br. sh. drlg.
C. C. M. Oil, No. 1-U.S., Midway-Sunset, Kern Co.	30-32-24	1,676	sd. sh. drlg.
Evans, H. B., No. 19 Midway-Sunset, Kern Co.	35-32-23	1,729	cmtd. 1,727
Standard Oil, No. 78-33-D Midway-Sunset, Kern Co.	33-32-24	2,754	sd. sh. drlg.
Quality Oil, No. 1-W.P., Midway-Sunset, Kern Co.	27-32-23	2,050	sd. sh. drlg.
Texas Co., No. 23 Midway-Sunset, Kern Co.	32-32-24	3,005	rig. to pump
Texas Co., No. 24 Midway-Sunset, Kern Co.	32-32-24	1,993	sd. sh. drlg.
U. S. Pumping Equip., No. 5 Midway-Sunset, Kern	12-11-24	1,350	pump. 15 b.d.
Transco Drlg., No. 4 Grimm, Midway-Sunset, Kern	25-32-23	1,869	br. sh. drlg.
Richfield Oil, No. 8-H-A Crampton, Elk Hills, Kern	1-31-24	2,960	pump. 67 b.d.
Reserve Oil & Gas, No. 33-4 Tejon, Kern Co.	33-11-19	5,443	P.B. 4,546
Ohio Oil, No. 2 Tejon, Kern Co.	21-11-19	9,654	P.B. 5,975
Seaboard Oil, No. 1 Firebaugh, Madera Co.	27-12-15	2,891	sd. sh. drlg.
Western Gulf Oil, No. 4 Cantua, Fresno Co.	32-16-15	6,528	dry; abd.
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	10,856	core. O.S.
K. N. D. A., No. 47-28-J Kettleman North, Fresno Co.	28-21-17	7,395	sd. sh. drlg.
K. N. D. A., No. 67-28-J Kettleman North, Fresno Co.	28-21-17	7,877	flow. 750 b.d.
K. N. D. A., No. 41-4-P Kettleman North, Fresno Co.	4-22-17	6,873	br. sh. drlg.
K. N. D. A., No. 83-4-P Kettleman North, Fresno Co.	4-22-17	5,997	br. sh. drlg.
K. N. D. A., No. 6-6-Q Kettleman North, Kings Co.	6-22-18	3,934	sd. sh. drlg.
K. N. D. A., No. 27-6-Q Kettleman North, Kings Co.	6-22-18	2,187	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., plugging big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shut off no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

Standard Oil, No. 27-33-J Kettleman North, Fresno	33-21-17	6,072	sd. sh. drlg.
Standard Oil, No. 41-33-J Kettleman North, Fresno	33-21-17	8,025	completing
Standard Oil, No. 4-3-P Kettleman North, Kings Co.	3-22-17	7,800	sd. sh. drlg.
Standard Oil, No. 78-3-P Kettleman North, Kings Co.	3-22-17	8,390	sd. sh. drlg.
Temblor Oil, No. 1-B Kettleman Middle, Kings Co.	25-23-18	7,745	br. sh. drlg.
Dudley Ridge Dev., No. 1 Tulare Lake, Kings Co.	24-23-20	3,290	bl. sh. drlg.
Tri-Counties Oil, No. 1 Tulare Lake, Kings Co.	10-23-22	6,010	sd. sh. drlg.
Martin, J. D., No. 4-A Pismo, San Luis Obispo Co.	5-32-13	3,340	sd. sh. drlg.
Temblor Oil, No. 1 Panorama, San Luis Obispo Co.	22-32-21	3,045	sd. sh. drlg.
Burkholder Oil, No. 1 Panorama, San Luis Obispo Co.	14-10-26	4,030	sd. sh. drlg.
Hancock Oil, No. 1 Huasna, San Luis Obispo Co.	30-12-33	968	idle
Lewis, A. O., No. 1 Pecho, Huasna, San Luis Obispo	34-30-10	2,772	recmtd. 2,320
Elba Oil Co., No. 1 Pajaro, Monterey Co.	6-13-2	3,675	gr. sd. drlg.
Anderson, Amil, No. 1 Cholame, Monterey Co.	15-24-14	1,610	sd. sh. drlg.
Texas Co., No. 2 Eureka, Humboldt Co.	22- 3-1	6,473	cleaning out
Amerada Pet., No. 1 N. Hamilton, Rio Vista, Solano	36- 4-2	4,450	cmtd. 4,040
Buttes Oilfields, Ltd., No. 1 Kent, Sutter Co.	2-15-1	5,850	flow. gas
Standard Oil, No. 1 Delano, Tulare Co.	36-24-23	7,340	sd. sh. drlg.
Tulare Dome Oil, No. 1 Allensworth, Tulare Co.	17-21-23	2,152	sd. sh. drlg.
Jennings, E. P., No. 2 Allensworth, Tulare Co.	33-23-23	2,073	sd. sh. drlg.
Stone & Youngberg, No. 1 Two Rock, Sonoma Co.	29- 5-8	475	dry; abd.
Petaluma Expl., No. 1 Petaluma, Sonoma Co.	33- 5-6	181	sd. sh. drlg.
Standard Oil, No. 1 Hooper, Woodland, Yolo Co.	32- 9-1	3,800	sd. sh. drlg.
Empire O. & G. Co., No. 1 Woodland, Yolo Co.	8- 9-3	231	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Richfield Oil, No. 1-SF El Segundo, Los Angeles Co.	18- 3-14	7,690	P.B. 7,666
Richfield Oil, No. 2 Elsie, El Segundo, Los Angeles	12- 3-15	4,874	sd. sh. drlg.
Union Oil, No. 3 El Segundo, Los Angeles Co.	18- 3-14	5,580	sd. sh. drlg.
Sunshine Oil, No. 1 El Segundo, Los Angeles Co.	12- 3-15	3,855	sd. sh. drlg.
Ohio Oil, No. 6 Gough, El Segundo, Los Angeles Co.	7- 3-14	5,683	sd. sh. drlg.
Texas Co., No. 3 Security, El Segundo, Los Angeles	18- 3-14	7,162	Schist; drlg.
Texas Co., No. 4 Security, El Segundo, Los Angeles	18- 3-14	6,681	sd. sh. drlg.
Royalty Service, No. 2 El Segundo, Los Angeles Co.	7- 3-14	5,523	sd. sh. drlg.
Standard Oil, No. 2 Refinery, El Segundo, Los Angeles	13- 3-15	3,251	sd. sh. drlg.
Standard Oil, No. 3 Refinery, El Segundo, Los Angeles	13- 3-15	1,996	sd. sh. drlg.
Pac. Western Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	5,199	sd. sh. drlg.
Getty Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	5,181	sd. sh. drlg.
Republic Pet., No. 2 El Segundo, Los Angeles Co.	18- 3-14	7,699	rig. to pump
Douglas Oil, No. 9 Peck, Lawndale, Los Angeles Co.	20- 3-14	7,200	sd. sh. drlg.
Young & Bryan, No. 1 Peck, Lawndale, Los Angeles	20- 3-14	7,247	br. sh. drlg.
Calizoo Oil, No. 1 S.L.A., Los Angeles Co.	16- 3-13	7,523	P.B. 5,800
I. V. Oil, No. 1 Torrance, Los Angeles Co.	16- 4-14	4,280	cleaning out
Keystone Oil, No. 2 Torrance, Los Angeles Co.	8- 4-14	2,140	sd. sh. drlg.
B. C. L. Oil, No. 1 Torrance, Los Angeles Co.	5- 4-14	3,260	sd. sh. drlg.
C. C. M. Oil, No. 34-T Torrance, Los Angeles Co.	16- 4-14	4,282	cleaning out
Loma Verde Oil, No. 12 Torrance, Los Angeles Co.	16- 4-14	4,647	sd. sh. drlg.
McLaren & Assoc., No. 1 Palos Verdes, Los Angeles	27- 4-14	3,992	P.B. 1,680
Shell Oil, No. 23 Rindge, Inglewood, Los Angeles Co.	8- 2-14	2,161	sd. sh. drlg.
Texas Co., No. 1 Moynier, Inglewood, Los Angeles	8- 2-14	3,764	P.B. 2,790
Country Club Oil, No. 1 Inglewood, Los Angeles Co.	19- 2-14	4,998	idle
Shell Oil, No. 91 Reyes, Dominguez, Los Angeles Co.	33- 3-13	7,732	O.S. drlg.
Tide Water A. O., No. 14 Dominguez, Los Angeles Co.	34- 3-13	3,930	sd. sh. drlg.
Union Oil, No. 54 Callender, Dominguez, Los Angeles	33- 3-13	6,885	sd. sh. drlg.
Union Oil, No. 56 Callender, Dominguez, Los Angeles	33- 3-13	4,531	sd. sh. drlg.
Union Oil, No. 47 Hellman, Dominguez, Los Angeles	33- 3-13	6,251	sd. sh. drlg.
Barnsdall Oil, No. 16 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,881	O.S. drlg.
Barnsdall Oil, No. 17 O'Dea, Rosecrans, Los Angeles	18- 3-13	6,995	sd. sh. drlg.
Union Oil, No. 11 Rosecrans, Los Angeles Co.	18- 3-13	5,960	idle
Union Oil, No. 17 Rosecrans, Los Angeles Co.	18- 3-13	1,996	sd. sh. drlg.
Macrate, A. N., No. 2 Rosecrans, Los Angeles Co.	17- 3-13	7,091	sd. sh. drlg.
Universal Consd., No. 1-T Rosecrans, Los Angeles Co.	18- 3-13	7,559	cleaning out
Bolsa Chica Oil, No. 1 Rosecrans, Los Angeles Co.	20- 3-13	7,944	P.B. 7,270
Union Oil, No. 19 D.R., Playa Del Rey, Los Angeles	27- 2-15	5,926	sd. sh. drlg.
Sharby Oil, No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	5,980	sd. sh. drlg.
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	2,050	sd. sh. drlg.
Barnsdall Oil, No. 2-S.F., Newhall, Los Angeles Co.	26- 4-17	4,700	sd. sh. drlg.
Holbrook Pet., No. 1 Newhall, Los Angeles Co.	28- 4-16	5,890	sd. sh. drlg.
General Pet., No. 15 Ford, Wilmington, Los Angeles	4- 5-13	3,078	flow. 620 b.d.
General Pet., No. 17 Ford, Wilmington, Los Angeles	4- 5-13	1,971	sd. sh. drlg.
General Pet., No. 18 Ford, Wilmington, Los Angeles	4- 5-13	5,101	sd. sh. drlg.
General Pet., No. 19 Ford, Wilmington, Los Angeles	4- 5-13	3,030	flow. 940 b.d.
General Pet., No. 20 Ford, Wilmington, Los Angeles	4- 5-13	1,692	sd. sh. drlg.
General Pet., No. 21 Ford, Wilmington, Los Angeles	4- 5-13	3,100	flow. 951 b.d.
General Pet., No. 3 Isco, Wilmington, Los Angeles	4- 5-13	3,791	sd. sh. drlg.
General Pet., No. 6-T Wilmington, Los Angeles Co.	4- 5-13	3,615	flow. 575 b.d.
General Pet., No. 8-T Wilmington, Los Angeles Co.	4- 5-13	3,461	flow. 1,520 b.d.
Bankline Oil, No. 6-P.T., Wilmington, Los Angeles	34- 4-13	3,275	sd. sh. drlg.
Bankline Oil, No. 9-P.T., Wilmington, Los Angeles	33- 4-13	3,396	pump. 190 b.d.
Bankline Oil, No. 20-P.T., Wilmington, Los Angeles	34- 4-13	3,111	sd. sh. drlg.
Bankline Oil, No. 7-3-W Wilmington, Los Angeles Co.	34- 4-13	2,386	sd. sh. drlg.
Burnoel Oil, No. 586-B Wilmington, Los Angeles Co.	33- 4-13	3,150	sd. sh. drlg.
Crude Oil Drlg., No. 1-M Wilmington, Los Angeles	33- 4-13	3,406	pump. 180 b.d.
Dunlap, D. D., No. 3 Wilmington, Los Angeles Co.	33- 4-13	2,772	sd. sh. drlg.
Eltra Oil, No. 10 Wilmington, Los Angeles Co.	33- 4-13	3,655	flow. 200 b.d.
Hall, Inc., No. 1 Lakme, Wilmington, Los Angeles	32- 4-13	3,626	flow. 430 b.d.
Jergins Trust, No. 3 Wilmington, Los Angeles Co.	34- 4-13	3,460	flow. 240 b.d.
McDonald & Burns, No. 1 Wilmington, Los Angeles	32- 4-13	3,140	sd. sh. drlg.
Oceanic Oil, No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,530	pump. 160 b.d.
Pac. Western, No. 1 Norris, Wilmington, Los Angeles	33- 4-13	2,388	sd. sh. drlg.
Packard Pet., No. 1481-1 Wilmington, Los Angeles	33- 4-13	2,532	sd. sh. drlg.
Royalty Service, No. 3-S.F., Wilmington, Los Angeles	33- 4-13	3,600	sd. sh. drlg.
Royalty Service, No. 4-S.F., Wilmington, Los Angeles	33- 4-13	2,941	sd. sh. drlg.
Royalty Service, No. 1-P.E., Wilmington, Los Angeles	33- 4-13	1,976	sd. sh. drlg.
Royalty Service, No. 2-P.E., Wilmington, Los Angeles	32- 4-13	2,182	sd. sh. drlg.
Royalty Service, No. 842-2 Wilmington, Los Angeles	33- 4-13	5,072	sd. sh. drlg.
Royalty Service, No. 1-C Wilmington, Los Angeles	33- 4-13	3,604	flow. 450 b.d.
Royalty Service, No. 5-A Wilmington, Los Angeles	33- 4-13	3,050	flow. 410 b.d.
Royalty Service, No. 3-B Wilmington, Los Angeles	33- 4-13	3,523	flow. 380 b.d.
Royalty Service, No. 4-B Wilmington, Los Angeles	33- 4-13	1,783	sd. sh. drlg.
Selegna Drlg., No. 7 Wilmington, Los Angeles Co.	33- 4-13	3,320	flow. 310 b.d.
Selegna Drlg., No. 8 Wilmington, Los Angeles Co.	32- 4-13	2,660	sd. sh. drlg.
Sonwell Oil, No. 2 Wilmington, Los Angeles Co.	33- 4-13	3,030	sd. sh. drlg.
Texas Co., No. 1 Refinery, Wilmington, Los Angeles	34- 4-13	2,121	fish. D.C.&B.
Union Pacific, No. 4 Wilmington, Los Angeles Co.	4- 5-13	2,656	sd. sh. drlg.
Union Pacific, No. 9 Wilmington, Los Angeles Co.	33- 4-13	3,619	sd. sh. drlg.
Union Pacific, No. 20 Wilmington, Los Angeles Co.	3- 5-13	2,665	sd. sh. drlg.
Union Pacific, No. 36 Wilmington, Los Angeles Co.	33- 4-13	3,121	sd. sh. drlg.
Union Pacific, No. 39 Wilmington, Los Angeles Co.	33- 4-13	3,360	sd. sh. drlg.
Union Pacific, No. 42 Wilmington, Los Angeles Co.	33- 4-13	2,715	sd. sh. drlg.
Union Pacific, No. 43 Wilmington, Los Angeles Co.	4- 5-13	3,645	sd. sh. drlg.
Union Pacific, No. 45 Wilmington, Los Angeles Co.	4- 5-13	2,519	sd. sh. drlg.
Union Pacific, No. 3-C Wilmington, Los Angeles Co.	33- 4-13	2,964	sd. sh. drlg.
Wilbur, V. R. G., No. 1-S.F., Wilmington, Los Angeles	33- 4-13	3,135	sd. sh. drlg.
Wilton Oil, No. 1 Wilmington, Los Angeles Co.	5- 5-13	2,931	sd. sh. drlg.
Sunset Oil, No. 1 Manhattan, Los Angeles Co.	19- 3-14	7,865	sd. sh. drlg.
Julian, C. A., No. 1 Koch, Walnut, Los Angeles Co.	5- 2-9	2,361	sd. sh. drlg.
Richfield Oil, No. 2 Ciocca, Montebello, Los Angeles	5- 2-11	5,966	cleaning out
Texas Co., No. 17 Baldwin, Montebello, Los Angeles	6- 2-11	8,046	P.B. 6,750
Standard Oil, No. 2 Temple, Montebello, Los Angeles	10- 2-11	3,249	rig. to pump
Texas Co., No. 3 Flower, Long Beach, Los Angeles	19- 4-12	4,843	fish. D.P.
Mitchell, A. D., No. 3 Plymouth, L. Beach, L. Angeles	19- 4-12	3,743	P.B. 3,688
Richfield Oil, No. 10 Denni, Long Beach, Los Angeles	19- 4-12	4,155	O.S. drlg.
Richfield Oil, No. 5 Frye, Long Beach, Los Angeles	19- 4-12	4,540	rig. to pump
Coastal O. & G. Co., No. 1 Signal, L. Beach, L. Angeles	19- 4-12	4,500	bailing
Clayton, G. L., No. 1 North Long Beach, Los Angeles	32- 3-12	5,276	sd. sh. drlg.
Union Oil, No. 100 Santa Fe Springs, Los Angeles Co.	6- 3-11	10,789	milling 7,690
Texas Co., No. 7-W Santa Fe Springs, Los Angeles Co.	6- 3-11	5,897	hd. sh. drlg.
Continental Oil, No. 40 Bixby, Seal Beach, Orange Co.	2- 5-12	2,392	sd. sh. drlg.
Wilshire Oil, No. 1-A Huntington, Orange Co.	2- 6-11	3,880	sd. sh. drlg.
Wilshire Oil, No. 6-B Huntington, Orange Co.	2- 6-11	4,340	sd. sh. drlg.
Tide Water, No. 41 M.K., Huntington, Orange Co.	2- 6-11	4,608	P.B. 4,314
Union Oil, No. 10 Brooks, Huntington, Orange Co.	34- 5-11	4,252	pump. water
Johnston Drlg., No. 1 Sunset Beach, Orange Co.	20- 5-11	3,296	sd. sh. drlg.
Shell Oil, No. 4-1 Columbia, Olinda, Orange Co.	9- 3-9	5,664	sd. sh. drlg.
Cox, M. A., No. 1 East Coyote, Orange Co.	15- 3-10	5,450	P.B. 3,150
Bartholomae Oil Co., No. 5 East Coyote, Orange Co.	22- 3-10	1,002	sd. sh. drlg.
Dolicia Oil, No. 3 A.U.W., East Coyote, Orange Co.	24- 3-10	3,960	rig. to pump
Tide Water A. O., No. 42 East Coyote, Orange Co.	22- 3-10	3,595	cleaning out
Standard Oil, No. 2-16 Kraemer, Richfield, Orange	29- 3-9	4,490	sd. sh. drlg.
Union Oil, No. 14 Stern, Richfield, Orange Co.	33- 3-9	3,373	pump. 95 b.d.
Bachman Pet., No. 1 Yorba, Orange Co.	21- 3-9	1,572	sd. sh. drlg.
Signet Oil, No. 1 Yorba, Orange Co.	21- 3-9	1,947	cleaning out
West American Oil Co., No. 1 Tustin, Orange Co.	14- 5-9	6,070	recmtd. 5,170
Shell Oil Co., No. 1-H Anaheim, Orange Co.	9- 4-10	3,440	sd. sh. drlg.

KANSAS

Week Ending August 21 (Descriptions are East unless marked otherwise)

Barber County

Olson Oil Co. and Skelly Oil Co. No. 1 Elsea, SW SE NW sec. 27-32-14w. Drlg. 1,930 ft.

W. I. Southern, Inc., No. 1 Davis, SE SE NE sec. 24-34-15w. K.C. 4,215 ft.; set 8-in. 4,572 ft.; drlg. cmt.

Barton County

Armer & Vernon Oil & Gas Co. No. 1 Persons, SW SW SE sec. 7-17-13w. Spd. and S.D.

J. B. Hanna No. 1 Luce, SW cor. sec. 21-20-13w. Set 5-in. 3,414 ft.; T.D. 3,428 ft.; acd.; 1,000 F.I.H., mostly wtr.

Helmerich & Payne et al No. 1 Sessler, SW SW SE sec. 29-20-1w. S.W. 3,423 ft., T.D.; P.B. 3,416 ft.; shot; C.O.

Sam Murphy No. 1 Beck, NE cor. sec. 17-17-12w. Sil. 3,355-68 ft.; running 5-in.

Phillips Pet. Co. No. 1 McClanahan, NE NE SE sec. 7-16-13w. Cd. 3,364-77 ft., T.D.; swbd. 375 B.O. in 6 hrs.; 1,700 ft. off bttm.

C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; 1,900 ft. O.I.H. and 5 B.W. in 1½ days.

Republic Nat. Gas Co. No. 1 Bloomer, NE NW NW sec. 14-17s-11w. Cd. 3,327-38 ft., T.D.; 2,700 ft. O.I.H. in 12 hrs.

Stanolind O. & G. Co. No. 1 Natl. Bank, SE SE SW sec. 36-16-13w. Cored 3,390-3,400 ft.; no shows.

Vickers Pet. Co. No. 1 Lucas, NW NW NE sec. 16-17-14w. Fsg. 2,660 ft.

Ralph Wixson et al No. 1 Buhrle, SE SE NE sec. 14-16-13w. Drlg. 710 ft.

Butler County

Rex & Morris et al No. 1 Stephens, SW SW SE sec. 35-23-3e. Drlg. 425 ft.

Chase County

California-Illinois-Kansas Oil Co. No. 1 Hughes, SW NW SE sec. 13-22-9e. Set 5-in. 2,599 ft.

Chautauqua County

C. L. Broslus et al No. 1 Garrett, NW SW NW sec. 26-32-11. Run 6-in. csg. 1,940 ft.

Harrison No. 1 Brown, NE SE NE sec. 19-34-10. Drlg. 215 ft.

Robinson et al, No. 1 Foster, SW cor. sec. 6-33-12. Sil. 1,981 ft. (cor.); T.D. 1,986 ft.; P. 120 B.O. and 10 B.W. in 20 days.

C. R. Ross et al No. 1 Walker, NW NW SE sec. 5-33-11. Drlg. 2,100 ft.

S. H. Vineard No. 1 Hughes, NE NE SE sec. 13-32-12. S.D. 400 ft.

Cowley County

Lewis Prod. Co. No. 1 Feaster, SE NE SW sec. 36-32-5. Drlg. 2,000 ft.

National Ref. Co. No. 1 Schwantes, NW SW NE sec. 16-32-3e. Drlg. 2,729 ft.

Rex & Morris et al No. 1 Lanier, NE NE NW sec. 10-30-5e. Drlg. 2,535 ft.

E. B. Shawver No. 1 fee, NW NE SE sec. 3-30-4e. Drlg. 2,555 ft.

Edwards County

McMinn et al No. 1 Meade, SE SE NW sec. 33-25-16w. Drlg. 2,700 ft.

Ellis County

Billings No. 1 Smith, SE SE NW sec. 14-12-16w. Sil. 3,356 ft.; T.D. 3,370 ft.; acd.: P. 95 B.O. in 4 hrs.; pot. 572 B.O.

Brunson Drlg. Co. et al No. 1 Weisner, SE SW SE sec. 31-13-17w. Drlg. 1,385 ft.

Colonial Oil Co. No. 1 Albert, SW SW NE sec. 31-12-18w. Spd. to 12 ft.

Lario O. & R. Co. No. 1 Bell, NW NW NE sec. 8-12-18w. Drlg. 1,070 ft.

L. M. Reynolds No. 1 Polcyn, SE SE NE sec. 24-13-16w. Drlg. 355 ft.

C. E. W. Skiles et al No. 1 Jensen, SW SE NE sec. 26-12-18w. Anhy. 1,355 ft.; set 10-in. 1,360 ft.

Earl Wakefield et al No. 1 Burnett, NW NW NE sec. 1-11-18w. Cmtd. 6-in. 2,788 ft.; C.O. at 2,835 ft.

Western Kansas O. & R. Co. and Aylward Prod. Co. No. 1 Schmeidler, NW cor. sec. 22-12-17w. U.R. 8-in. 3,080 ft.

Winkler & Koch No. 1 Karlin, NW cor. sec. 13-12-18w. S.D. 850 ft.

Ellsworth County

Equity Gas Co. No. 1 Razac, NE NE SE sec. 31-15-10w. Drlg. 2,340 ft.

C. E. W. Skiles et al No. 1-A Sturn, SE SE SW sec. 31-17-9w. Drlg. 3,248 ft.

Grant County

Panhandle Eastern Pipe Line Co. No. 1 Blake, C SW sec. 21-30-36w. Drlg. 2,365 ft.

Panhandle Eastern Pipe Line Co. No. 1 Taggert, C sec. 11-30-37w. Set 7-in. 2,435 ft.; R.U.S.T.

Greenwood County

Ward McGinnis et al No. 1 Henly Estate SW cor. sec. 25-25-9. T.D. 2,234 ft.; H. F.W.; P.B.; cmt. 6-in.

Ward McGinnis et al No. 1 Smith & Jobes, NW NW SE sec. 10-24-13e. Set 6-in. 1,613 ft.; T.D. 1,633 ft.; W.O.C.

Hamilton County

Denver Prod. & Ref. Co. No. 1 Porter, SW SW NE sec. 30-25-41w. Sil. 6,402 ft.; drlg. 6,442 ft.

Harper County

Magnolia Pet. Co. No. 1 Freeman, SE NW SW sec. 3-31-6w. Cg. 4,860 ft.

Harvey County

E. I. Shaffer et al No. 1 Epp, SE cor. sec. 15-23-3w. T.D. 3,915 ft.

Kearny County

J. L. Murphy No. 1 Masonic Home, C NW sec. 1-26-36w. Drlg. 1,610 ft.

Logan County

Morgan, Flynn, Cobb et al No. 1 McMullen, C NW sec. 9-13-37w. S.D. 3,489 ft. for repairs.

Lyon County

Arthur Sory No. 1 Byrd, SW SW SE sec. 32-21-11. T.D. 1,913 ft.; 200 ft. O.I.H.; shot; C.O.

Marion County

Hutchinson O. & G. Co. et al No. 1 Ehrmann, SE SE SW sec. 15-18-1e. Drlg. 2,438 ft.

Western Kansas O. & R. Co. et al No. 1 Suderman, SE SW NW sec. 22-20-2e. Drlg. 2,675 ft.

McPherson County

C. E. Ash Drlg. Co. No. 1, NE NE NW sec. 19-17-4w. Drlg. 1,110 ft.

Bradley Bros. No. 1 Barnholt, SW SW SE sec. 30-20-5w. Chat 3,292 ft.; T.D. 3,335 ft.; P. 107 B.O. in 12 hrs., 2% wtr.

Fred C. Frank et al No. 1 Doles, SE NW NE sec. 12-19-1w. Drlg. 2,660 ft.

Wamhoff et al No. 1 Nuse, SE NE SW sec. 18-18-4w. S.D. 1,850 ft.

Mitchell County

Geo Siedhoff et al No. 1 Gretss, SW SW SE sec. 16-8-10w. Drlg. 3,772 ft.

Ness County

Jones & Lane No. 1 Page Milling Co SE SE NW sec. 36-18-26w. S.D. 1,060 ft.

Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. Inc. oil 4,400-02 ft.; 3,500 ft. O.I.H. at 4,406 ft.; S.D.

Osborne County

Fred C. Chaddox and Atlantic Ref. Co. No. 1 Slater, NE SW NE sec. 33-10-15w. S.D. 1,270 ft.

Pratt County

Atlantic Ref. Co. et al No. 1 Runyon, SW NW NE sec. 11-27-13w. T.D. 4,310 ft.; set 6-in. 4,288 ft.; 1½ B.O.P.H.; good showing of gas.

Skelly Oil Co. et al No. 1 Adams, SE NW NE sec. 2-28-11w. Set 8-in. 3,451 ft.; R.U.S.T.

Reno County

Helmerich & Payne No. 1 Haines, SW cor. sec. 9-25-5w. Drlg. 3,763 ft.

Imo O. & G. Co. et al No. 1 Watkins, SE cor. sec. 14-22-7w. Chat 3,548 ft.; 100 ft. W.I.H.; S.D.

Pryor & Lockhart et al No. 1 Stuckey, NW SW SW sec. 31-25-5w. Drlg. 3,610 ft.

Sam Schneider et al No. 1 Kroecker, NE cor. sec. 12-22-5w. S.D. 480 ft.

Rice County

Bell O. & G. Co. et al No. 1 Wilkins, NW NW NE sec. 23-21-9w. Simp. 3,591 ft.; Sil. 3,643 ft.; T.D. 3,662 ft.

Gerbrand-Pulse Oil & Drilling Co. No. 1 Wellman, SW cor. sec. 22-21-9w. S.D. 1,185 ft.

John Hanna et al No. 1 Marshall, NE NW NW sec. 30-18s-8w. S.D. 1,515 ft.

H. V. Holland et al No. 1 Brothers, SE cor. sec. 12-21-7w. T.D. 3,476 ft.; 2,800 ft. O.I.H. in 21 hrs.

Skiles et al No. 1 Campbell, SE SE NE sec. 28-19-9w. Drlg. 715 ft.

W. E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. S.D. 2,423 ft.

Rooks County

Brunson Drlg. Co. et al No. 1 Casey, SE SE NE sec. 22-9s-16w. Set 5-in. 3,555 ft.; Cong. 3,570 ft.; drlg. 3,647 ft.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. T.D. 3,326 ft.; p. 39 B.O. and 48 B.W. in 8 hrs.

J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. Fsg. 3,875 ft.

Rush County

Duwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Sil. 3,492-95 ft.; 1,500 ft. sulfur water in hole in 2½ hrs.; T.D. 3,512 ft.; S.D.O.

Earl Wakefield et al No. 1 Zimmerman, SE SE SW sec. 7-16-18w. Drlg. 1,090 ft.

Westgate-Greenland Oil Co. No. 1 Hagerman, NE cor. sec. 20-19-16w. Drlg. 3,040 ft.

Russell County

Boyle & Grossman No. 1 Deines, SE SE SW sec. 36-15-15w. Sil. 3,451 ft.; H.F.W. 3,471-76 ft.; T.D. 3,179 ft.

Cities Service Oil Co. and Texas Co. No. 1 Boxberger B, NE cor. sec. 23-13-15w. Run 15-in. to 315 ft.

Shell Pet. Corp. No. 1 Batt, SE cor. sec. 35-15-14w. Set 4½-in. 3,300 ft.; R.U.S.T.

Winkler & Koch No. 1 Jones, SE SE NW sec. 22-14-13w. Sil. 3,180 ft.; S.D.O.

Sedgwick County

Home Stake Royalty Co. No. 1 McCormick, SW SW NW sec. 23-25-3w. Drlg. 2,750 ft.

Palmer Oil Corp. No. 1 Royal, NE cor. sec. 15-28-1w. Drlg. 1,790 ft.

E. B. Shawver No. 1 Furman, SW NE SE sec. 24-29-3w. Sil. 4,150-60 ft.; wtr.

W. G. Talbott et al No. 1 Downs Est., SE SE NW sec. 32-28-2e. Drlg. 1,870 ft.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. S.D. 830 ft.

Stafford County

Newman & Winemiller No. 1 Sittner, NE cor. sec. 33-21-12w. Set 7-in. 3,360 ft.; acd.; F. 393 B.O. in 3 hrs.

Stanolind O. & G. Co. et al No. 1 Hartnett, NW NW NE sec. 23-24-11w. Anhy. 820 ft.; drlg. 3,517 ft.

Stevens County

Kuhn Bros. et al No. 1 Youngren, SE SE NW sec. 1-32-39w. Set 7-in. 2,380 ft.; drlg. cmt.

Sumner County

Cities Service Oil Co. No. 1 McCoy, SE SW sec. 11-35-2e. Spd.

Douglass & Gear No. 1 Strickler, SW NW NE sec. 30-32-1w. Drlg. 4,480 ft.

W. M. McKnab No. 1 Blair, SW cor. sec. 7-30-1e. U.R. 12-in. 1,387 ft.

Trego County

Phillips Pet. Co. No. 1 Trego, C SE SW sec. 14-12-23w. Set 8-in. 3,718 ft.; R.U. S.T.

F. L. Thorn et al No. 1 Koeppen, SE SE SW sec. 31-14-24w. U.R. 7-in. 3,973 ft.

Woodson County

Morris et al No. 1 Koening, SE SE NW sec. 35-24-15. H.F.W. 1,458 ft.; S.D.O.

Fred Rapp No. 1 Houghland, NW NW SE sec. 2-25-15. S.D. 1,400 ft.

OKLAHOMA

Week Ending August 21

NORTHERN OKLAHOMA

Adair County

B. L. Maddox No. 1 Penn Mutual, C S half NE NW sec. 5-16-24. Drlg. 260 ft.

Beckham County

Bud Lewis No. 1-A Douglas C SE NE sec. 21-8n-26w. Drlg. 2,180 ft.

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,200 ft.; C.O.

Caddo County

Clyde Becker et al No. 1 Pharris, SE SE NW sec. 24-6-12w. T.D. 6,235 ft.; S.D. for water.

Cleveland County

W. R. Hollenbeck No. 1 Norman, NW NW NE sec. 17-9-2w. T.D. 7,178 ft.; P.B. and drlg. by at 5,959 ft.

Hollenbeck et al No. 1 Ward, SW SE NE sec. 30-7-1e. Drlg. 4,920 ft.

Creek County

L. B. Jackson No. 1 Alberty, NE NE NW sec. 25-18-9. T.D. 2,420 ft.; U.R.

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. Burgess 3,005 ft.; T.D. 3,009 ft.; drlg. plug.

Garvin County

Carter Oil Co. No. 1 Potts, C E½ SE NW sec. 36-1n-3w. T.D. 1,415 ft.; P.B. and fsg. in new hole at 1,395 ft.

B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. Drlg. 1,352 ft.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 6,414 ft.; rep. pmps.

Grant County

Carter Oil Co. et al No. 1 Crisman, C W½ SW NW sec. 16-25-3w. T.D. 5,403 ft.; D.S.T. filled 330 ft. with oil and 90 ft. mud in 20 min.; set 7-in. 5,391 ft.; drlg. plugs.

Haskell County

Continental Oil Co. No. 1 Ferguson, SW SE NE sec. 33-8-20. Drlg. 6,079 ft.

Hughes County

W. O. Allen No. 1 Barnard, SW cor. sec. 24-8-8. T.D. 4,270 ft.; P.B. 3,423 ft.; recmtg. csg.

Burke-Greis Oil Co. No. 1 Rhea, SW SW SE sec. 14-10-9. T.D. 1,780 ft.; fsg.

Carter Oil Co. No. 1 Hamilton, C W½ NE SW sec. 33-4-9. T.D. 6,172 ft.; P.B. 5,989 ft.; dpnd. to 5,994 ft.; perf. csg. and acd.; swbd. 111 B.O. net in 14 hrs., 17% wtr.

E. H. Moore, Inc., No. 1 Buck, NW SW SW sec. 21-8-10. Drlg. 3,325 ft.

Moroney & Healey No. 1 Field, C NW SW sec. 11-9-11. T.D. 3,476 ft.; est. 2,500,000 ft. gas; S.D.

Texas Co. No. 1 Cox, NE NW NW sec. 23-9-8. Drlg. 4,305 ft.

Kay County

Black Gold Oil Co. No. 2 Cooley, SW cor. sec. 25-28-4e. T.D. 1,920 ft.; U.R. 6-in. at 1,720 ft.

Kiowa County

Hughes & Reese No. 1 Fultz, SE cor. sec. 10-6-18w. T.D. 600 ft.; S.D. for csg.

Kiowa Oil Corp. No. 1 Finder, C SW NE sec. 4-6-20w. T.D. 1,050 ft.; S.D.

Latimer County

Clark Drlg. Co. et al No. 1 Wilson, C SE SE sec. 15-5-18. T.D. 6,515 ft. in Atoka; P.B. 3,820 ft.; perf. 2,720-2,970 ft.; to test at 2,700-ft. horizon.

Lincoln County

Cimarron Oil Corp. No. 1 Ornor, C SW SE sec. 31-17-2e. Wilcox 4,997-5,009 ft., T.D.; D.&A.

Logan County

Shell Pet. Corp. et al No. 1 Waddle, SW SE NW sec. 36-15-4w. Drlg. 6,655 ft.

Sunray Oil Co. and Olson Drlg. Co. No. 1 Canning, SW SW NE sec. 31-17-1w. Drlg. 1,360 ft.

Muskogee County

F. E. Cusack No. 1 fee, NE SW SE sec. 20-15-20. Spd. 65 ft.

Noble County

Herndon Drlg. Co. No. 1 Baggett, SE cor. sec. 13-21-3e. Drlg. 4,044 ft.

Okfuskee County

F. W. Merrick No. 1 Mackey, NE NE SW sec. 29-11-10. T.D. 2,045 ft. in dry sand.

Riverland Oil Co. No. 1 Board, NE NW SE sec. 10-13-10. Set 6-in. 2,788 ft.; T.D. 2,840 ft.

Oklahoma County

Frank Buttram et al No. 1 Cole, NW cor. sec. 16-14-1e. Drlg. 4,330 ft.

Pontotoc County

Boettcher O. & G. Co. No. 1 Cann, SE NW NE sec. 25-4n-7e. T.D. 4,347 ft.; fsg.

Kerlyn Oil Co. No. 1 Pratt, SW SE NE sec. 6-4-4e. T.D. 621 ft.; R.U.R.

Norbla Oil Co. No. 1 McBride, NE NE SW sec. 10-2n-5e. Drlg. 300 ft.

Papoose Oil Co. et al No. 1 Jones, NW SE NW sec. 2-4-5. Viola 2,595 ft.; T.D. 2,840 ft.; run Schlumberger; S.D.O.

Roodhouse et al No. 1 Booth, SE NW SE sec. 20-2-6. T.D. 4,966 ft.; P.B. 4,397 ft.; perf. csg.; flwg. avg. 44 B.O. daily.

Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; drill pipe stuck.

Pottawatomie County

Atlantic Ref. Co. No. 1 Dooley, SE SE SW sec. 9-11-5. Set 7-in. 4,917 ft.; T.D. 4,919 ft.; P.B. 4,770 ft.; to recmt.

Mid-Continent Pet. Corp. No. 1 Ne-Thah-Pea-Se, SE SE NE sec. 24-11-4. Dol. 4,853-86 ft.; shot; swb. avg. 175 B.O. daily.

Roy S. Nash et al No. 1 Miller, C N½ NE SE sec. 29-6-3e. T.D. 4,088 ft.; fsg.

British-American Oil Co. No. 1 Ramsey, SE SE NE sec. 27-6-4. T.D. 3,819 ft.; recmtg. 7-in. csg.

Seminole County

Atlantic Ref. Co. and Gulf Oil Corp. No. 1 Decker, SW cor. sec. 32-11-6e. Drlg. 4,575 ft.

Gillespie & Moore No. 1 Gaines, NE SW SW sec. 20-6n-7e. Set 7-in. csg. 2,717 ft.; W.O.C.

E. W. Jones et al No. 1 Belford, NE SE NE sec. 9-9-8. Drlg. 3,321 ft.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Salina, SE NE NW sec. 4-5-6. T.D. 3,317 ft.; R.U.S.T.

Washita County

John Koberg No. 1 Harms, NW NW NE sec. 6-10-16w. Drlg. 4,260 ft.

SOUTHERN OKLAHOMA

Atoka County

A. L. Larson No. 1 Mason, SW SE SE sec. 35-1n-14. Drlg. 140 ft.

Carter County

C. F. Dillingham No. 1 Evans, NW NW SW sec. 12-1s-3w. T.D. 2,705 ft.; D.&A.

Coal County

Carter Oil Co. No. 1 Claytor, C W½ NE SW sec. 27-2n-9e. Drlg. 4,677 ft.

Phillips Pet. Co. No. 1 Beck, SE SW SW sec. 6-1n-9e. Drlg. 1,390 ft.

Comanche County

M. J. Andrichak No. 1 Korthouse, NW NE SW sec. 35-2n-10w. Drlg. 834 ft.

Frank Scott No. 1-A Kuntz, SE NE SE sec. 21-4n-11w. T.D. 2,793 ft.; S.D.

Jackson County

Ace Gutowsky No. 1 Booker, NW cor. sec. 33-2n-18w. T.D. 580 ft.; S.D.

Ace Gutowsky No. 1 Howard, NE SW NW sec. 10-3n-19w. T.D. 950 ft.; S.D.

E. L. Lippert et al No. 1 Miller, NW cor. sec. 4-2n-18w. T.D. 200 ft.; U.R.

Johnston County

Patton et al No. 1 McCrummins, C SW SW NE sec. 16-1s-6e. S.D. 1,165 ft.

W. T. Sheldon No. 1 Chapman, C NW NW sec. 26-4s-6e. Drlg. 520 ft.

Marshall County

Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. O.W.D.D.; C.O. to 720 ft.; S.D.

Nett-Godfrey No. 1 Chapman, SW SE SW sec. 36-4s-4e. T.D. 3,009 ft.; D.&A.

Murray County

O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. T.D. 2,574 ft.; 1,400 ft. W.I.H. S.D.

Power Oil Co. No. 1 Lancaster Trust, C SW NE sec. 10-1-2e. T.D. 3,714 ft.; to sdtrk. at 3,165 ft.

Pushmataha County

Erle Halliburton et al No. 1 Bagwell, SW NE NE sec. 30-3s-15e. Drlg. 4,344 ft.

Stephens County

Carter Oil Co. No. 1 Harley, C NE NE sec. 24-2s-4w. T.D. 8,157 ft.; set 7-in. 7,475 ft.; drlg. plugs.

Jack Cohen No. 1 Pierce, NE NE NW sec. 24-2s-6w. Drlg. 1,050 ft.

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. Drlg. 8,785 ft.

Ed Parsons No. 1 Blake, C SW NW sec. 22-2n-8w. Set 9-in. 4,947 ft.; T.D. 4,966 ft.; S.O&G.; to test.

Tillman County

Cavens et al No. 1 Southerland, SW SW NW sec. 35-4s-16w. T.D. 44 ft.; S.D.

Gulf Oil Corp. No. 1 Prichard, SE NW SE sec. 32-3s-16w. Drlg. 780 ft.

Indian Territory Ill. Oil Co. No. 1 Graham, SE SE NE sec. 1-3s-19w. Set 9-in. at 3,080 ft.; W.O.C.

Tom Walker No. 1 Bowman, SW SW NW sec. 10-4s-17w. Drlg. 200 ft.

ARKANSAS

Ashley County

Phillips Pet. Co. No. 1 Godfrey, C S½ SW NW sec. 18-17-9. Drlg. 4,945 ft.

Columbia County

Robt. Keene et al No. 1 Runyon, NW SE NE sec. 1-16s-21w. Drlg. 910 ft.

Standard of La. No. 1 J. P. McKean, SW sec. 8-16s-22w. Drlg. 4,488 ft.

Cross County

Manning & Martin, Inc., No. 1 Park-Greseck, NW NE NE sec. 4-6n-5e. R.U.

Drew County

Sloan Wells et al No. 1 R. L. Hardy, SE SE NW sec. 3-14s-7w. Drk.

Hempstead County

H. D. Easton et al No. 1 R. M. LaGrone. sec. 5-12-26. Drlg. 2,213 ft.

Shephard & Todd et al No. 1 Smith, NW SW NE sec. 11-11-25. Cg. sd. 1,990 ft.

Lonoke County

Frank F. Silver No. 2 Chambers, SW NE NW sec. 17-2n-7w. 7-in. cmtd. 1,487 ft.; prep. test O.S.; T.D. 1,500 ft.

Miller County—Rodessa

Anding & Bird No. 1 B. A. Skipper, SW NW SW sec. 11-20-28. Cg. 6,057 ft.

F. W. Burford No. 1 A. A. Capps, W½ sec. 14-20-28. Rng. short stg.; T.D. 6,085 ft.

F. W. Burdord No. 1-B A. A. Capps, NE SE SE sec. 11-20-28. 13-in. cmtd. 270 ft.

F. W. Burford No. 1 Easton, E½ SW SE sec. 11-20-28. Comp.; flw. 288 bbls. in 17 hrs.; T.D. 6,060 ft.

F. W. Burdord No. 3 Easton, sec. 11-20-28. Drlg. 2,119 ft.

F. W. Burford No. 1-B Gerald, NE cor. sec. 15-20-28. Comp.; flw. 231 bbls. in 8 hrs.; T.D. 6,050 ft.

F. W. Burford No. 1-B G. G. Gerald, NE S½ sec. 15-20-28. R.U.

H. L. Hunt No. 1 Womack, SE sec. 10-20-28. Drlg. 150 ft.

H. L. Hunt No. 2 Womack, NE SW SE sec. 10-20-28. R.U.

W. M. Layton No. 1 Terry, NW cor. sec. 14-20-28. Comp.; flw. 40 B.P.H.; T.D. 6,058 ft.

Wm. M. Layton No. 4 Terry, SW cor. sec. 14-20-28. R.U.

McClanahan et al No. 2 A. A. Capps, SW sec. 11-20-28. Rng. 7-in.; T.D. 6,067 ft.

McClanahan et al No. 3 Capps, sec. 11-20-28. Drlg. 5,413 ft.

McClanahan No. 1 Larey, sec. 11-20-28. Drlg. 5,885 ft.

J. R. Ostrom No. 1 J. O. Gerrald, NW E½ sec. 15-20-28. R.U.

Roberts Drlg. Co. No. 1 W. W. Capps, SE NW SE sec. 10-20-28. T.D. 6,121 ft.; rng. 7-in.

Nevada County

Benedum & Trees No. 1-A C. C. Fincher, NW NW NE sec. 10-14-20. W.O.S.R.

W. E. Lekey, Tr., No. 1 Purifey, sec. 17-11-20. S.D. 1,420 ft.

Ouachita County

Copenhaver Oil Corp. No. 1 J. E. Evans, sec. 20-11-19. S.D.; fuel; T.D. 1,728 ft.

Tide Water-Seaboard Oil Co. No. 1 S. A. Graves Est., NW SE NW sec. 33-13-18. Drlg. 3,896 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. Drlg. 1,040 ft.; hd. rk.

St. Francis County

Manning & Martin No. 1 R. C. Gregg, sec. 20-5n-5e. T.D. 3,540 ft.; D.&A.

Union County—Schuler

E. M. Jones et al No. 1 First Natl. Bank NW NE NE sec. 19-18-17. Comp.; flw. 687 B.P.D.; T.D. 6,351 ft.

E. M. Jones et al No. 1 K. Gallagher, NW SW sec. 19-18-17. T.D. 5,929 ft.; D.&A.

E. M. Jones et al No. 1 Marine Oil Co. ter. NW SW SE sec. 17-18-17. Drlg. 6,290 ft.; deep test.

Lion Oil Rfg. Co. No. A-1 M. D. Justiss NE NW NE sec. 19-18-17. T.D. 6,015 tstg. oil.

Lion Oil Ref. Co. No. 1-A Edna Morgan, O.W.D.D. T.D. 5,559 ft.; R.U. to D.D.

Lion Oil Ref. Co. No. 3-A Edna Morgan SE Lot 1, SW sec. 18-18-17. Comp.; flw. 1,255 B.P.D.; T.D. 6,142 ft.

Phillips Pet Co. No. 2 E. Gan, SE SW NE sec. 18-18-17. T.D. 6,058 ft.; tstg. S.W.; prep. P.B.

Phillips Pet. Co. No. 1 M. Justiss, SE Lot 6, NW sec. 18-18-17. Comp.; flw. 350 B.P.D.; T.D. 6,142 ft.

Phillips Pet. Co. No. 2 M. Justiss, NE Lot 2, SW sec. 18-18-17. Comp.; flw. 427 B.P.D.; T.D. 6,087 ft.

Sklar Oil Corp. No. 1 W. J. Fitzgerald,

William M. Barret, Inc.

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GIDDENS-LANE BUILDING -:- SHREVEPORT, LA.

SW NW SW sec. 8-18-15. Comp.; pmp.; 10 B.P.D.; T.D. 2,140 ft.
Sklar Oil Corp. No. 1 O. G. Murphy, SE NW SW sec. 24-17-16. Comp.; pmp. 15 B.P.D.; T.D. 2,148 ft.

Alice Sydney Oil Co. No. 2 Morgan, sec. 18-18-17. T.D. 6,307 ft.; tstg.; S.O.
W. D. Wingfield et al No. 1 Sou. Kraft Corp., SW NE sec. 18-19-14. Drig. 4,029 ft.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Blackwell O. & G. Co. No. 3 Neugent, sec. 8-23-16. T.D. 6,750 ft.; tstg. dry; S.O.
Clark Oil Corp. No. 2-A Sharp, SW SE sec. 4-23-16. Comp.; flw. 93 B.P.D.; T.D. 6,055 ft.
Holcomb & Thomasson No. 1 Dillon, SE sec. 4-23-16. 7-in. 5,934 ft.; T.D. 6,070 ft.
Holcomb & Thomasson No. 1 Smith, SE sec. 4-23-16. Drlg. 4,457 ft.
Magnolia Pet. Co. No. 1 D. F. Barr, NW S½ sec. 29-23-16. 7-in. cmtd. 6,046 ft.; T.D. 6,060 ft.
R. W. Norton No. 1 Payne, C SE SE sec. 27-23-16. P.B. 5,980 ft.; tstg.
R. W. Norton No. 9 Starke, NW sec. 17-23-16. 13-in. cmtd. 255 ft.
R. W. Norton No. 12 Starke, NW sec. 17-23-16. Drlg. 2,187 ft.
R. W. Norton No. 13 Starke, NW sec. 17-23-16. Comp.; flw. 12 B.P.H.; T.D. 6,000 ft.
R. W. Norton No. 14 Starke, C sec. 16-23-16. Drlg. 4,203 ft.
Roberts Drlg. Co. No. 1 E. G. Finley, NW sec. 1-23-16. 7-in. cmtd. 6,000 ft.; T.D. 6,050 ft.
Standard Oil of La. No. 2 McCoy, sec. 10-23-16. 7-in. 5,868 ft.; T.D. 5,899 ft.
Standard Oil of La. No. 2 S. G. Zylks, NW NW SW sec. 10-23-16. Cg. 5,833 ft.
Surf Oil Co. No. 1 Allison, NE sec. 8-23-16. Swbg.; T.D. 6,050 ft.
United Gas No. 5 Starke, SE sec. 8-23-16. Drlg. 2,015 ft.

N. LOUISIANA WILDCATS

Bienville Parish

DeSota O. & G. Co. No. 1 Ashley, SW SE sec. 15-16-10w. T.D. 5,525 ft.; tstg.
H. L. Hunt and Seaboard Oil Co. No. 1 Commercial Real Estate Corp., NE NW sec. 3-16-6. Drlg. 2,445 ft.
Lide & Greer No. 2 Davis, NW NE sec. 12-16-5w. T.D. 7,355 ft.; S.W.; S.D.; W.O.
McDowell et al No. 1 Locke, NE cor. sec. 9-15-10. Fsg. 2,921 ft.

Bossier Parish

Arkansas-La. Gas Co. No. 2 T. Wilson, NW SW sec. 8-17-11. 7-in. 4,995 ft.; T.D. 5,120 ft.
Triangle Drlg. Co. No. 1-A Schuler Est., SE NW sec. 13-17-12. Drlg. 400 ft.
United Gas No. 2-A A. J. Murff, NE sec. 19-17-11. Drlg. 5,017 ft.
United Gas No. 1-B A. J. Murff, SW sec. 17-17-11. Drlg. 5,036 ft.

Caddo Parish

W. D. Ambrose No. 1 J. B. Files, SE NE SE sec. 10-20-16. Drlg. 1,025 ft.
Caltexo O. & G. Co. No. 3 Scott, SW cor. sec. 5-16-16. Comp.; pmp. 20 B.P.D.; T.D. 2,454 ft.
W. P. Clark No. 1 Dyer, C sec. 10-20-16. Drlg. 125 ft.
L. J. Davis No. 1 Stiles, SE sec. 17-21-16. Drlg. 405 ft.
W. J. Hunter et al No. 1 Stoer, NW qw NE sec. 10-15-15. P.B. and tstg.; T.D. 5,413 ft.; S.G.; perf. 5,100-20 ft.; tstg.
La. Oil Prod. Co. No. 10-B Muslow, SW SE SW sec. 4-20-15. R.U.
Frank Perkins No. 1 Stiles, SW SW sec. 33-21-16. Comp.; pmp.; 14 B.P.D.; T.D. 963 ft.
Frank Perkins No. 3 Stiles, SW sec. 33-21-16. 12-in. cmtd. 62 ft.
Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. Drlg. 8,595 ft.
Stanolind O. & G. Co. No. 125 Dilion, NW NE sec. 14-21-15. Drlg. 1,004 ft.
Surf Maji Oil Co. No. 1 Satellete, NE SE sec. 10-20-15. Drlg. 320 ft.
R. G. Trippett and D. C. R. Co. No. 3 Caddo, NE cor. sec. 16-19-14. 7-in. cmtd. 2,423 ft.

Claiborne Parish

Atlantic Ref. Co. No. 3 King, E½ SE SE sec. 35-21-5. 5-in. cmtd.; T.D. 5,267 ft.
Atlantic Ref. Co. No. 4 F. B. King, W½ SE SE sec. 35-21-5. R.U.
Atlantic Ref. Co. No. 1-A Tatum, N½ NE SE sec. 31-21-4. Drlg. 1,800 ft.
Atlantic Ref. Co. No. 1-B Tatum, W½ NW SW sec. 32-21-4. Drlg. 1,500 ft.
R. L. Bauman No. 2 M. S. Patton, N½ NW NE sec. 1-20-5. Drlg. 500 ft.
Gulf Ref. Co. No. 1 S. E. Tatum, SW cor. sec. 32-21-4. Tstg.
Harry Hanbury No. 1-C Vaughn, S½ SE SE sec. 25-21-5. Drlg. 4,605 ft.
Harry Hanbury No. 1-D Vaughn, S½ SW SW sec. 30-21-4. Drlg. 4,010 ft.
Hollifield & McFarland No. 3 M. Patton, E½ NW SE sec. 31-21-4. T.D. 5,293 ft.; tstg.
Hollifield & McFarland No. 4 M. S. Patton, E½ SW SE sec. 31-21-4. Drlg. 841 ft.
T. L. James No. 1 Baker, sec. 25-21-5. T.D. 5,222 ft.; acd. and tstg.
T. L. James No. 1 D. E. Fowler, W½ NE SW sec. 32-21-4. R.U.
Love Bros. No. 2 J. J. Henry, N½ NE NE sec. 31-21-4. Drlg. 3,759 ft.
Lyons & Neely No. 2 J. Bean, E½ SE NE sec. 31-21-4. Drlg. 3,641 ft.
Magnolia Pet. Co. No. 6 English, S½ NE NW sec. 31-21-4. 10-in. 840 ft.
Magnolia Pet. Co. No. 3 H. E. Patton, W½ SW SW sec. 36-21-5. Comp.; flw. 22 B.P.H.; T.D. 5,288 ft.
Olson Drlg. Co. No. 1 J. T. Bean, S½ NW NW sec. 32-21-4. 7-in. 5,138 ft.; T.D. 5,154 ft.
Olson Drlg. Co. No. 1 T. F. Patton, SW C sec. 30-21-4. 7-in. 5,172 ft.; T.D. 5,172 ft.
Olson Drlg. Co. No. 1-B T. F. Patton, S½ SE SW sec. 29-21-4. Drlg. 1,800 ft.
Scouts Oil Co. No. 1 E. C. English, S½ SW SE sec. 30-21-4. Drlg. 3,675 ft.
Sells Prod. Co. No. 1 J. Bean, W½ SW NW sec. 32-21-4. 5-in. 5,173 ft.; T.D. 5,195 ft.
Sells Pet. Co. No. 2 W. Jones, E½ SE SE sec. 31-21-4. Drlg. 4,650 ft.
Sloan & Zook Co. No. 1 Patton Est., NE NW sec. 1-20-5. Drlg. 4,924 ft.
Shreveport Oil Corp. No. 1 Edwards, NE sec. 16-20-5w. T.D. 5,411 ft.; tstg. S.O.; acidized.
Standard Oil of La. No. 3 F. B. King, NW SE sec. 35-21-5. 7-in. 5,269 ft.; T.D. 5,300 ft.
J. C. Tippett No. 2 Aycock, S½ NE SE sec. 1-20-5. Drlg. 3,185 ft.
United Gas No. 2 Brownfield, 660 ft. N and E, SW NW sec. 5-19-5w. Drlg. 5,710 ft.
United Gas et al No. 1 J. W. Stevenson, SE SW SE sec. 6-19-5. O.W.D.D.; T.D. 4,323 ft.; R.U.
G. H. Vaughn No. 1 E. B. King, S½ SE SE sec. 30-21-4. Drlg. 1,297 ft.

Concordia Parish

Coastal Mineral & Dev. Co. No. 1 Winsten, sec. 23-7-9e. S.D. 1,655 ft.

De Soto Parish

Clear Lake Oil Co. No. 1 J. A. Woolums, NW sec. 29-12-12. Top ck. 1,188 ft.; S.D. 1,200 ft.
E. M. Harter No. 1 F. Giquque, SE NE SW sec. 26-11-11. Drlg. 525 ft.
Kennedy & Britewell No. 1 Redding, SE NE sec. 35-11-11. T.D. 2,962 ft.; D.&A.
Lyons & Neely No. 1 J. P. Brown, sec. 16-10-11. T.D. 2,923 ft.; D.&A.
J. F. McMannan No. 1 Cook Ld. Co., SE sec. 16-16-11. Drlg. 3,320 ft.
Paul Miller No. 1 R. A. Bafron, sec. 36-11-11. T.D. 2,945 ft.; tstg.; S.W.; S.D.; W.O.
Pullman Oil Co. No. 3 Ramsey, SE NE NW sec. 36-11-11. T.D. 2,942 ft.; tstd. 2,000,000 ft. gas; S. D.; wtr.
Arthur D. Robinson No. 1 Allison, NW sec. 17-14-13. Cg. 2,773 ft.

Franklin Parish

Tensas Delta Oil Corp. No. 1 Woodland, NE sec. 22-11-9. R.U.

LaSalle Parish

Petroleum Heat & Power Corp. No. 1 P. S. Gahoran, SW NW sec. 25-10-1e. 6-in. cmtd. 1,458 ft.
Placid Oil Co. No. 4 La. Cen. Lbr. Co., SW sec. 15-10-3e. R.U.

Lincoln Parish

J. E. Burford, Sr., No. 1 Hanna, SE SW SE sec. 34-18-4w. Drlg. 2,480 ft.
Crown Cen. Pet. Co. No. 2 T. F. Patton, S½ SE NW sec. 6-20-4. 10-in. 847 ft.
Hollifield & McFarland No. 1 J. D. Caruthers, S½ NE NW sec. 6-20-6. Fsg. D.S. 4,292 ft.
T. L. James No. 1 J. J. Spence, SW NE sec. 11-17-4. Drlg. 5,240 ft.
W. F. Lacey et al No. 1 Laura Canathers, W½ NW NE sec. 6-20-4. Comp.; flw. 39 B.P.H.; T.D. 5,264 ft.
W. F. Lacey No. 2 T. F. Patton, E½ NW NE sec. 6-20-4. R.U.
Ludel Oil Corp. No. 1 Gill, NE NE NW sec. 36-20-2w. Drlg. 1,800 ft.
Lyons & Neely No. 1 W. H. Patton, N½ SW NW sec. 6-20-4. Drlg. 5,020 ft.
Lyons & Neely No. 1 H. E. Patton, N½ NE SW sec. 6-20-4. R.U.
Olsen Drlg. Co. No. 1 Aycock, N½ SW SW sec. 6-20-4. Drlg. 2,222 ft.

Red River Parish

Gulf Ref. Co. No. 28 L. E. Kennedy, NW sec. 25-13-11. Drlg. 1,110 ft.
W. J. Hunter No. 2 Long Bell Lbr. Co., SW NW sec. 20-19-9. Drlg. 1,850 ft.
J. C. Prine No. 1 Haynes, SW sec. 20-13-10. Hole clean; T.D. 2,550 ft.; S.D.; W.O.

Sabine Parish

Ellis Prod. Co. No. 1 Wright, NW SW sec. 4-5-12. S.D. 3,004 ft.
Odell Hinson No. 1 Long Bell Lbr. Co., SE NE NW sec. 5-8-13. 7-in. cmtd. 1,688 ft.; T.D. 1,811 ft.
Kirk-Green-Way Inc. No. 1 Whitney Corp., NW NE sec. 8-9-13. P.B. to 5,170 ft.; tstg.

Webster Parish

Magnolia Pet. Co. No. 4 Aarnes-Cox, NW sec. 22-21-10. 13-in. cmtd. 840 ft.
Magnolia Pet. Co. No. 2 A. J. McCook, SW sec. 22-21-10. Drlg. 8,162 ft.
Ohio Oil Co. No. 47 Bodcaw Acct. 2, SW SE sec. 15-21-10. Drlg. 6,796 ft.
Ohio No. 1 S. P. D. Covie and W. Cox, SW SW SE sec. 23-21-10. Drlg. 4,304 ft.
Ohio Oil No. 1 T. Crichton, Acct. No. 2, SE NE sec. 21-21-10. Drlg. 6,848 ft.
Ohio No. 7-B R. L. Holloway, 586 ft. N. 756 ft. E line, sec. 23-21-10. Drlg. 6,741 ft.
A. G. Oliphant et al No. 1 Banks, NE NE sec. 34-21-10. 9-in. cmtd. 5,807 ft.; T.D. 5,894 ft.
Ohio Oil Co. No. 1 D. W. Merritt, SW cor. sec. 14-21-10. Drlg. 3,326 ft.
Standard Oil Co. of La. No. 7 Mrs. M. F. Davis, NE NE NW sec. 23-21-10. Drlg. 3,381 ft.
Standard Oil Co. of La. No. 2-B Mrs. M. E. Gray, NE NE NW sec. 26-21-10. Drlg. 3,537 ft.
Standard Oil of La. No. 1 E. L. Stewart, SE SE SE sec. 32-21-10. T.D. 8,700 ft.; 7-in. cmtd. 8,681 ft.
Woodley Pet. Co. No. A-2 L. C. Cox, SW NE sec. 22-21-10. Comp.; flw. 539 bbls. dist. and 5,000,000 ft. gas; T.D. 8,288 ft.

Winn Parish

Georgetown Oil Co. No. 1 Tremont, sec. 19-10-1e. S.D. 1,603 ft.
G. W. Zeigen No. 11 La. Cen. Lbr. Co., NW sec. 11-13-1e. S.D. 1,550 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Brookshire, sec. 66-12s-3e. Drlg. sh. 11,272 ft.

Anse La Butte—St. Martin Parish

Crusader Pet. Co. No. 3-B Begnaud. Drlg. sh. 625 ft.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlane et al No. 1 Wurzlow, sec. 17-22s-18e. T.D. 10¾-in. csg. 1,008 ft.; bailed S.W.; tried to blow out; hole bridged; S.D.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 4 Wilbert, sec. 74-9s-10w. R.U.

Bayou Cocotrie—Terrebonne Parish

Shell Pet. Corp. No. 1 Pelican, sec. 35-17s-15e. Abd. 10,727 ft.
Shell Pet. Corp. No. 2 Pelican, sec. 19-17s-15e. Drive piling.
Shell Pet. Corp. No. 3 Pelican, sec. 19-17s-15e. Drive piling.

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 Henry Hebert, sec. 18-12s-8w. Drlg. sh. 9,103 ft.
Union Sulphur Co. No. 1 P. J. Herbert, sec. 18-12s-8w. T.D. 8,439 ft.; run csg.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 38 Watkins. Drlg. sdy. sh. 5,702 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 50 State, sec. 19-23s-20e. T.D. 5,059 ft.; abd.
Texas Co. No. 51 State, sec. 19-23s-20e. T.D. 3,694 ft.; 7-in. csg. 3,655 ft.; W.O.C.

Cameron Meadows—Cameron

Magnolia-Humble O. & R. Co. No. 20 Cameron Meadows, sec. 21-14s-13w. T.D. 4,983 ft.; rmg.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 1 Landry, sec. 25-13s-9e. Drlg. sh. 8,574 ft.
Pan American Ref. Co. No. 4 Laws Realty Co., sec. 30-13s-10e. Drlg. sh. 7,976 ft.
Pan American Prod. Co. No. 1 Veeder, sec. 30-13s-10e. Drlg. sh. 9,082 ft.
Pan American Prod. Co. No. 1 Veeder-Hunt, sec. 30-13s-10e. Drlg. sh. 2,606 ft.

Choctaw—Iberville Parish

Standard Oil Co. No. 10 Grove, sec. 52-9s-11e. T.D. 5,303 ft. in salt; D.S. stck.
Standard Oil Co. No. 6 Gay, sec. 52-9s-11e. T.D. 5,490 ft. in salt; sdtrkd. 4,411-75 ft.; I.P. 118 B.P.D.; pmpg.
Standard Oil Co. No. 7 Gay, sec. 52-9s-11e. Cmtd. 13⅜-in. csg. 956 ft.; T.D. 3,009 ft.; straightening hole.

Darrow—Ascension Parish

Humble O. & R. Co. No. 16 Community, sec. 29-10s-2e. Drlg.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. R.U.

Dog Lake—Terrebonne Parish

Texas Co. No. 18 State, sec. 5-22s-16e. Drlg. 7,404 ft.

Edgerly—Calcasieu Parish

Crusader Pet., Inc., No. 1 Miller Bros., sec. 27-9s-11w. Drlg. sdy. sh. 4,945 ft.

Fausse Point—Iberia Parish

Texas Co. No. 3 State, sec. 35-11s-8e. T.D. 4,524 ft.; P.B. and sdtrkd. 2,904 ft.; drlg. sh. 3,744 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 9 L.L.&E., sec. 24-21s-16e. Drlg. sh. 6,853 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 22 State, sec. 37-23s-33e. Drlg. sh. 4,603 ft.

Gillis—Calcasieu Parish

Union Sulphur Co. No. 3 Bel, sec. 2-9s-8w. Drlg. sdy. sh. 5,446 ft.
Union Sulphur Co. No. 8 Castle, sec. 13-9s-8w. T.D. 7,153 ft.; 5-in. csg. 7,153 ft.; tstg.

Gueydan—Vermilion Parish

Pure Oil Co. No. 6 Mulney Investment Co., sec. 34-11s-1w. 10¾-in. csg. 1,049 ft.; T.D. 4,300 ft.; P.B. 4,196 ft.; tstd. S.W.; make squeeze job; I.P. 56 B.P.D.

Hackberry—Cameron Parish

Burton-Sutton Joint Interest No. 2 A. Portie, sec. 22-12s-10w. T.D. 4,952 ft.; I.P. 128 B.P.D.
W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
W. T. Burton Oil Co. No. 1 Henry, sec. 22-12s-10w. T.D. 3,727 ft.; I.P. 647 B.P.D.
W. T. Burton No. 4 Vincent, sec. 22-12s-10w. Drlg. sh. 2,575 ft.
Stanolind O. & G. Co. No. 1-B Duhon, sec. 27-12s-10w. T.D. 6,233 ft.; 7-in. csg. 5,815 ft.; perf. 5,761-75 ft.; swbg.
Stanolind O. & G. Co. No. 5 Duhon, sec. 22-12s-10w. T.D. 4,875 ft.; 7-in. csg. 4,798 ft.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 9 Carter & Sweeney, sec. 22-12s-10w. Drlg. sh. 5,147 ft.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 52 State, sec. 22-12s-10w. T.D. 4,910 ft.; 7-in. csg. 4,836 ft.
Stanolind O. & G. Co. No. 53 State, sec. 22-12s-10w. 10¾-in. csg. 1,939 ft.
Texas Co. No. 22-B State, Twp. 12s-9w. T.D. 7,628 ft.; 7-in. csg. 7,628 ft.; I.P. 660 B.P.D.; ¼-in. ck.
Texas Co. No. 23-B State, sec. 12-12s-9w. T.D. 5,448 ft.; P.B. 2,409 ft.
Union Sulphur Co. No. 9 Doiron, sec. 37-12s-10w. T.D. 6,176 ft.; 5-in. csg. 6,176 ft.

Iowa—Jefferson Davis Parish

Magnolia Pet. Co. No. 12 Wait. Drlg. sdy. sh. 5,110 ft.
Shell Pet. Corp. No. 28 Heyd, sec. 40-13s-9e. Cmtd. 9⅝-in. csg. 1,278.5 ft.; drlg. sh. 4,825 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 40-13s-9e. 9⅝-in. csg. 7,030 ft.; T.D. 9,765 ft.; P.B. and sdtrkd.; drlg. sh. 8,539 ft.
Herton Oil Co. No. 8 Carter, sec. 44-13s-9e. T.D. 7,048 ft.; I.P. 900 B.P.D.; ¼-in. ck.
Herton Oil Co. No. 5 Roans, sec. 40-13s-9e. Drlg. sh. 1,808 ft.

Jennings—Acadia Parish

Frank W. Bennett et al No. 1 Brethern and Christ Church, sec. 41-7s-2w. T.D. 4,875 ft.; P.B. 4,450 ft.; drlg. sh. 6,405 ft.
W. T. Burton No. 3 J. J. Roboria, sec. 41-9s-2w. Drlg. sh. 4,565 ft.
Cosmo Pet. Co. No. 1 M. E. Crusel, sec. 42-9s-2w. Drlg. sdy. sh. 6,352 ft.
Cosmo Pet. Co. No. 1 Jenning Heywood, sec. 41-9s-2w. No report.
D. D. Feldman et al No. 1 McFarlain, sec. 41-9s-2w. Cg. sd. 6,789 ft.
Glassell No. 1 Bourgeaux, sec. 41-9s-2w. T.D. 6,633 ft.; P.B. 5,452 ft.; tstg.
Glassell No. 3 Trushell, sec. 42-9s-2w T. D. 6,785 ft.; cmtd. 7-in. csg.
La. Crusader No. 108 Houssiere Latreille, sec. 47-9s-2w. T.D. 2,102 ft.; I.P. 25 B.P.D.
Louisiana Crusader Oil Co. No. 1 Heywood, Martin Campbell Sur., sec. 42-9s-2w. T.D. 3,850 ft.; I.P. 360 B.P.D.; 7/32-in. ck.
R. W. O'Merara No. 1 McFarlain, sec. 41-9s-2w. Drlg. sdy. sh. 5,125 ft.
Port City Oil Co. No. 2 Jennings-Heywood, sec. 41-9s-2w. T.D. 2,050 ft.; 5⅝-in. csg. 2,034 ft.; I.P. 100 B.P.D.
Reiter-Foster Oil Co. No. 1 Cockrell et al, sec. 42-9s-2w. Cap rock 4,157 ft.; P.B. 3,157 ft.; perf. csg. 3,106-24 ft.; reperf. csg.
Stanolind O. & G. Co. No. 11 Crowley, sec. 48-9s-2w. P.B. T.D. 1,926 ft.; R.U. to pmp.; I.P. 5 B.P.D.
Superior Oil Co. No. 5 Leckelt, sec. 42-9s-2w. Drlg. sh. 5,145 ft.
Superior Oil Co. No. 6 Leckelt, sec. 42-9s-2w. T.D. 7,225 ft.; 7-in. csg. 7,009 ft.
Superior Oil Co. No. 2 Moresi, sec. 41-9s-2w. Drlg. sh. 6,133 ft.
Superior Oil Co. No. 3 Moresi, sec. 41-9s-2w. Drlg. sd.&sh. 4,350 ft.

LEGAL

U. S. Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that Unit No. 2, embracing NW¼ of SE¼ Sec. 5, T. 23 N., R. 15 W., 28.93 acres; Unit No. 4, SW¼ of NE¼ Sec. 2, T. 23 N., R. 16 W., 27.96 acres; Unit No. 5, W½ of E½, NE¼ of NW¼ Sec. 3, T. 23 N., R. 16 W., 138.13 acres; and Unit No. 6, SW¼ of SE¼ Sec. 9, T. 23 N., R. 16 W., 39.95 acres, in the Rodessa Oil and Gas Field, Caddo Parish, Louisiana, subject to consolidation if awarded to same bidder, are offered to the responsible qualified bidders of the highest bonus per acre under section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in Circular 1386, at a sale to be held in the Federal Court Room, Post Office Building, Shreveport, Louisiana, at 12:00 noon, on September 3, 1937. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid and file the showing of qualifications to receive a lease required by section 7 of General Land Office Circular 1386. The remaining four-fifths, together with the annual rental in advance at the rate of $1 per acre must be paid prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Fred W. Johnson, Commissioner.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 8w. R.U.

Lafitte—Jefferson Parish

Texas Co. No. 7 L.L.E., sec. 20-17s-24w. Drk.

Texas Co. No. 2 Milling, sec. 20-17s-24e. Drlg. sh. 6,525 ft.

Texas Co. No. 1 State-Bayou Norma, sec. 28-17s-24e. Drlg. sh.&L. 10,256 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec. 1, 18s-25e. Drlg. sd.&sh. 6,609 ft.

Lake Washington—Plaquemines Parish

Humble O. & R. Co. No. 25 Cockrell, sec. 35-20s-26e. Drlg. sh. 2,530 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 17 State, sec. 17-23s-18e. T.D. 6,594 ft.; I.P. 1,291 B.P.D.; ⅜-in. ck.

Leesville—Lafourche Parish

Texas Co. No. 42 Leesville, sec. 27-21s-22e. Core sh. 4,095 ft.

Texas Co. No. 67 Leesville, sec. 27-21s-22e. T.D. 4,098 ft.; I.P. 611 B.P.D.; ¼-in. ck.

Long Lake—Lafourche Parish

Fohs Oil Co. No. 2 State, sec. 65-17s-19e. R.U.

Fohs Oil Co. No. 3 State, sec. 65-17s-19e. Drlg. 304 ft.

New Iberia—Iberia Parish

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. T.D. 5,019 ft.; P.B. and sdtrkd.; drlg. sd. 5,004 ft.

Texas Co. No. 3 Bryant, sec. 25-12s-7e. R.U.

Wm. Hellis No. 9 Bernard, sec. 54-12s-7e. Core sd. 5,126 ft.

Wm. Hellis No. 10 Bernard, sec. 54-12s-7e. R.U.

Wm. Hellis No. 6 Bullock-Burke, sec. 25-12s-7e. Drlg. sh. 3,060 ft.

Texas Co. No. 3 Coleste, sec. 25-12s-7e. Drlg. sh. 4,543 ft.

Texas Co. No. 3 Duhe, sec. 26-12s-7e. Drlg. sh.&L. 4,848 ft.

Texas Co. No. 6-B Hanzen, sec. 54-12s-7e. T.D. 4,775 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. et al No. 1 T.R.S. Farms Co., sec. 23-10s-4w. T.D. 9,151 ft.; 7-in. csg. on bttm.

Starks—Calcasieu Parish

Turnbull et al No. 2 Industrial Lbr. Co., sec. 19-9s-12w. T.D. 4,861 ft.; S.D.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 846 fee, sec. 29-9s-10w. T.D. 5,392 ft.; P.B. 5,275 ft.; swbg.; I.P. 655 B.P.D.

Union Sulphur Co. No. 847 fee, sec. 29-9s-10w. Drlg. sh. 4,545 ft.

St. Martinsville—St. Martin Parish

Tide Water Oil Co. No. 5 Smedes, sec. 57-11s-6e. Drlg. sh. 1,508 ft.

Tepetate—Acadia Parish

Continental Oil Co. No. 2 Vincent and Welch, sec. 29. Drlg. sh. 5,151 ft.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 7 Harang sec. 7-17s-20e. T.D. 5,075 ft.; I.P. 312 B.P.D.

Pan American Prod. Co. No. 8 Harang sec. 9-17s-20e. T.D. 7,504 ft.; P.B.; sdtrkd.; drlg. sh. 4,181 ft.

Pan American Prod. Co. No. 9 Harang, sec. 9-17s-20e. Drlg. sh. 6,853 ft.

Pan American Prod. Co. No. 10 Harang, sec. 7-17s-20e. Drlg. sh. 2,335 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 4 Manhattan Fruit Co., sec. 26-21s-30e. Dredge canal.

Vinton—Calcasieu Parish

Superior Oil Co. No. 1 Gray, sec. 4-11s-12w. Drlg. sh. 4,269 ft.

White Castle—Iberville Parish

T. D. Humphray No. 1 E. B. Adams, sec. 1-11s-12e. Drk.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. Drlg. sh. 4,117 ft.

Humble O. & R. Co. No. 1 Floyd Williams, sec. 34-8s-1e. T.D. 9,339 ft.; fsg.

Humble O. & R. Co. No. 1 R. A. Sarver, sec. 35-10s-1e. M.I.M.

T. S. Markley No. 1 Daigle, sec. 19-7s-2e. Drlg. sh. 310 ft.

J. G. Mayo et al. No. 1 Bank of Commerce, sec. 19-7s-1e. S.D. 9,008 ft.; abd.

Avoyelles Parish

Coastal Mineral Co. No. 1 Purdy Hess sec. 25-2n-3e. T.D. 6,054 ft. in hd. sh.& L.; S.D.; abd.

Calcasieu Parish

D. & D. Oil Co. No. 2 Lutcher-Moore, sec. 1-8s-13w. Drlg. sh. 6,226 ft.

Stanolind O. & G. Co. No. 1 Prairie Ld. & Canal Co., sec. 10-11s-9w. T.D. 9,120 ft.; abd.

Cameron Parish

Humble O. & R. Co. No. 1 Miami Corp., sec. 8-14s-5w. Drk.

Pure Oil Co. No. 2 State, sec. 14-13s-3w. Drlg. 7,083 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec. 4-15s-8w. M.I.R.; bldg. drk.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-8s-2e. T.D. 6,127 ft.; D.S. stuck.

Evangeline Parish

Continental Oil Co. No. 1 Tate, sec. 44-3s-2e. Drlg. sh. 8,595 ft.

Schlicher Prod. Co. No. 1 Denois Ld. & St. Stone Co., sec. 35-3s-1w. 13⅜-in. csg. 720 ft.

Iberia Parish

Jefferson Lake Oil Co. No. 414 State Lake Pigneur, Twp. 12s-5e. T.D. 7,071 ft.; swbd. S.W. and S.O.; prep. to drill ahead.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 125-12s-11e. S.D. 3,270 ft.

Jefferson Davis Parish

Stanolind O. & G. Co. No. 2-B Calcasieu Natl. Bank, sec. 28-7s-3w. 13⅜-in. csg. 1,950 ft.; T.D. 9,851 ft.; P.B. 8,954 ft.; tstg. sd. 8,956-65 ft.

Lafourche Parish

Gulf Oil Corp. No. 3 State P.P., sec. 36-23s-21e. Recvd. 1,000 ft. of oil on 6-min. D.S.T. at 6,749-6,846 ft.; core ahead.

Livingston Parish

Grubb et al No. 1 Evans, sec. 47-7s-2e. T.D. 7,656 ft.; D.S. stuck.

Plaquemines Parish

Gulf Oil Corp. No. 3 State (Jackson dist). Drlg. 560 ft.

Humble O. & R. Co. No. 4 Orleans Levee Bd., sec. 11-18s-15e. Drlg. 520 ft.

Rapides Parish

R. D. Webb No. 1 A. M. Brasher, sec. 22-4n-2w. S.D. 5,236 ft.; abd.

St. Bernard Parish

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; S.D. 3,440 ft.

St. Landry Parish

Gulf Oil Corp. No. 1 Haas & Hirsch, sec. 12-6s-1e. T.D. 8,483 ft.; abd.

St. Martin Parish

Texas Co. No. 10 St. Martin, sec. 15-8s-7e. Drlg. sh. 1,835 ft.

Texas Co. No. 3 State, sec. 14-10s-9e. cmtd. on bttm.; old T.D. 8,208 ft.; drlg. sdtrkd. hole; T.D. 6,870 ft.; abd.

St. Mary Parish

Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. T.D. 10,541 ft.; 7⅝-in. csg. 10,515 ft.; W.O. D.S.

Terrebonne Parish

Barnsdall Oil Co. No. 1 Dilbert, Stark & Brown Sur., sec. 110-16s-15e. Dredge canal.

Vernon Parish

Castor Creek Drlg. Co. No. 1 Llano Del Rio, Inc., sec. 34-2n-9w. Drk.

TEXAS

Week Ending August 21

GULF COAST FIELDS

Danbury—Brazoria County

Rowan Drlg. Co. No. 1 Jamison, Henry Austin Sur. 10¾-in. csg. 1,496 ft.; T.D. 6,691 ft.; abd.

Hastings—Brazoria County

Humble O. & R. Co. No. 2 Alexander, H. T.&B. Sur. No. 28. Drlg. sh. 5,630 ft.

Humble O. & R. Co. No. 6-B Cecil Brown, C Lot 86, Perry & Austin Sur. T.D. 6,053 ft.; rmg.

Humble O. & R. Co. No. 16 Cecil Brown, W. H. Snyder Sur. Drlg. sh.&L. 4,081 ft.

Humble O. & R. Co. No. 5 Haden, R. Hoppell Sur. T.D. 6,080 ft.; I.P. 614 B.P.D.; ¼-in. ck.

Humble O. & R. Co. No. 2 Schindler. Drlg. sh. 5,550 ft.

Humble O. & R. Co. No. 4 South Texas Grain Co., Lot 93, Perry & Austin Sur. T.D. 6,110 ft.; rmg.

Humble O. & R. Co. No. 1 R. P. Woods, Perry & Austin Sur. R.U.

Jay Simmons No. 1 G. H. Alexander, H. T.&B. Sur. No. 28. Spd.

Stanolind O. & G. Co. No. 2 Barnett, H.T. &B. Sur. No. 29. T.D. 6,074 ft.; I.P. 335 bbls. in 19½ hrs.

Stanolind O. & G. Co. No. 6-B Brown. T.D. 5,710 ft.; 7-in. csg. 5,709 ft.

Stanolind O. & G. Co. No. 3 Condon, H. T.&B. Sur., sec. 29. T.D. 5,900 ft.; 7-in. csg. 5,895 ft.

Stanolind O. & G. Co. No. 12-B Drake, H. T.&B. Sur. No. 36. Drlg. sh. 5,919 ft.

Stanolind O. & G. No. 12 H. H. Ford, H. T.&B. Sur. No. 29. R.U.

Stanolind O. & G. Co. No. 4 Martha Long, H.T.&B. Sur. No. 29. T.D. 1,267 ft.; cmtd. 10¾-in. surf. csg. 1,264 ft.; T.D. 5,735 ft.; run csg.

Stanolind O. & G. Co. No. 1 Matsushita, H. Stevens Sur. R.U.

Stanolind O. & G. Co. No. 4 McKibben, H.T.&B. Sur. No. 29. T.D. 5,901 ft.; 7-in. csg. 5,898 ft.

Stanolind O. & G. Co. No. 9 Paul, A.C.H. &B. Sur. No. 2. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.; I.P. 556 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 13 Paul, A.C. H.&B. Sur. No. 2. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.; I.P. 571 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 16 Paul, A.C. H.&B. Sur. No. 2. Drlg. sh. 1,150 ft.

Stanolind O. & G. Co. No. 1 Randall, A.C. H.&B. Sur. No. 2, Lot 29. R.U.

Stanolind O. & G. Co. No. 8 L. D. Shaw, H.T.&B. Sur. No. 36. T.D. 6,080 ft.; 7-in. csg. 6,074 ft.

Stanolind O. & G. Co. No. 9 Sneed, A.C. H.&B. Sur. No. 2. T.D. 6,080 ft.; 7-in. csg. 6,074 ft.

Stanolind O. & G. Co. No. 10 Sneed, A.C. H.&B. Sur. No. 2. T.D. 6,120 ft.; 7-in. csg. on bttm.

Stanolind O. & G. Co. No. 12 Gilbert Sneed, A.C.H.&B. Sur. No. 2. Drk.

Stanolind O. & G. Co. No. 5 Surface, B.B. B.&C. Sur. Drlg. sd. 5,955 ft.

Stanolind O. & G. Co. No. 10 Turner, A. C.H.&B. Sur. No. 1. Rig.

Stanolind O. & G. Co. No. 1 Wagner Sparks, H.T.&B. Sur. No. 29. Drlg. sh. 4,282 ft.

Stanolind O. & G. Co. No. 1 Winston, H. T.&B. Sur. No. 29. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.; perf. 6,054-66 ft.; I.P. 590 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 5 Wooster, A. C.H.&B. Sur. No. 1. Drlg. sd. 2,913 ft.

Stanolind O. & G. Co. No. 1 Wright. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.; I.P. 584 B.P.D.; ¼-in. ck.

Lockridge—Brazoria County

Gulf Oil Corp. No. 2 Baker, J. W. Hall Sur. T.D. 6,368 ft.; I.P. 669 B.P.D.; ¾-in. ck.

Gulf Oil Corp. No. 1 Great Southern, E. D. Robertson Sur. Drlg. sh. 400 ft.

Kirby Pet. Co. No. 1 Baker, J. W. Hall Sur. T.D. 6,369 ft.; 7-in. csg. 6,368 ft.; tstd. dist.; killed to W.O.

Dr. C. M. Lusk No. 1 Ramsey State Farm, J. W. Hall Sur. Drlg. sh. 5,335 ft.

Shell Pet. Corp. No. 1-B Ramsey, J. W. Hall Sur. T.D. 6,374 ft.; perf. csg. 6,358-65 ft.

Manvel—Brazoria County

F. D. Jones et al No. 1-A Bankers Mtg., E. Little Sur., Lot 75. Drk.

Texas Co. No. 3 W. O. Morrison, A.C.H.& B. Sur. No. 91. Drlg. sd.&L. 4,001 ft.

Texas Co. No. 4-B Way, Thos. Spraggin Sur. Drlg. sh.&L. 3,189 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1 Larsen, C. Breen Sur. Drlg. sh. 9,900 ft.

Harrison & Abercrombie No. 1 Smith, C. Breen Sur. R.U.

Sandy Point—Brazoria County

H. J. De Arman No. 2 J. A. Fite, D. Talley Sur. R.U.

Stratton Ridge—Brazoria County

A. B. Head et al No. 1 Seeburn Est., J. E. Groce Sur. Abd. 2,420 ft.; salt.

West Columbia—Brazoria County

Texas Co. No. 16 Abrams, G. Tenille Sur. T.D. 5,604 ft.; 7-in. csg. 5,490 ft.

Texas Co.-Sterling O. & R. Co. No. 2 Phillips, G. Tenille Sur. T.D. 5,636 ft.; run 7-in. csg.

Calhoun—Heyser—Victoria County

Geo. Echols No. 6 W. H. Bennett, J. E. Galban Sur. Drlg. 2,830 ft.

Gulf Oil Corp. No. 1 T. P. Traylor, J. E. Galban Sur. Drk.

Humble O. & R. Co. No. 3 Marshall, A. Sisneros Sur. Rig.

Humble O. & R. Co. No. 10 Welder, J. M. Rios Sur. Drlg. hd. sd. 4,871 ft.

Magnolia Pet. Co. No. 1 Lander, Galban Sur. Cg. sd.&sh. 5,630 ft.

Normandie Oil Co. No. 3 Cook, A. Sisneros Sur. Drlg. sh. 4,630 ft.

Portilla Drlg. Co. No. 2-B Welder, J. M. Rios Sur. Drk.

Sinclair Prairie Oil Co. No. 1 W. H. Bennett, A. Sisneros Sur. T.D. 5,752 ft.; 7-in. csg. on bttm.; perf. 5,740-48 ft.; I.P. 186 B.P.D.; 9/64-in. ck.

Sinclair Prairie Oil Co. No. 6 Bennett, A. Sisneros Sur. T.D. 919 ft.; W.O.C.

Sun Oil Co. No. 1 Coffey, J. Gabban Sur. Drlg. sh. 3,637 ft

Anahuac—Chambers County

Humble O. & R. Co. No. 11 Johnson. T.D. 7,123 ft.; P.B. 7,071 ft.; I.P. 3,489,000 ft. gas per day.

Humble O. & R. Co. No. 12 Johnson, sec. 47, H.&T.C. Sur. Drlg. sh. 3,359 ft.

Humble O. & R. Co. No. 6 Marshall. T.D. 7,110 ft.; I.P. 568 B.P.D.; ¼-in. ck.

Humble O. & R. Co. No. 18 Tyrell, sec. 52, H.&T.C. Sur. Drlg. sh. 4,363 ft.

Cotton Lake—Chambers County

Salt Dome Oil Corp. No. 2-B Lawrence, S. Barrow Sur. 10¾-in. csg. 1,119 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 3 Acorn, H.T.&B. Sur. 103. Spd.

Sun Oil Co. No. 1 Jackson, Yarbo Sur. T.D. 8,580 ft.; P.B. 8,500 ft.; cutting and pulling tbg.

Turtle Bay—Chambers County

Stanolind No. 4-A Middleton, S. Burney Sur. Drlg. 1,205 ft.

Stanolind O. & G. Co. No. 3 Middleton, Carroll Sur. Drlg. sh. 6,548 ft.

Stanolind O. & G. Co. No. 1 Morrisey, M. A. Carroll Sur. T.D. 6,625 ft.; 7-in. csg. 6,610 ft.; swbd. S.W.

Stanolind O. & G. Co. No. 2 Wm. Cooper Hrs., S. Burney Sur. Drlg. sh. 2,072 ft.

Stanolind O. & G. Co. No. 1 Silva, S. Burney Sur. R.U.

Sun Oil Co. No. 6 Chambers, M. A. Carroll Sur. Drlg. sh. 2,430 ft.

Garwood—Colorado County

Coyle-Concord No. 2 Mary South, sec. 41, I.&G.N. Sur. Cmtd. 10⅝-in. csg. 628 ft. drlg. sh. 2,830 ft.

Big Creek—Fort Bend County

Barnett Pet. Corp. No. 2 J. H. P. Davis, B. Nickson Sur. T.D. 3,080 ft.; P.B. and sdtrkd.; T.D. 3,729 ft.; perf. csg. 3,697-3,705 ft.; perf. csg. 3,672-80 ft.; sanded up; P.B. 3,157 ft.; perf. csg. 3,115-20 ft.; 3,125-32 ft.; I.P. 207 B.P.D.; ¼-in. ck.

Blue Ridge—Fort Bend County

Texas Gulf Prod. Co. No. 17 Blakely, Lot 9, Blk. C, E. Drew Sur. Drlg. sh. 2,937 ft.

Orchard—Fort Bend County

Gulf Oil Corp. No. 53 Moore, J. Frazier Sur. Drlg. 2,634 ft.

Gulf Oil Corp. No. 54 Moore, J. Frazier Sur. Drlg. sd.&sh. 4,020 ft.

Dickinson—Galveston County

Atlantic Ref. Co. No. 2 Anderson, W. G. Banks Sur. Drk.

Atlantic No. 3 Hutchins, P. G. Merritt Sur. T.D. 8,174 ft.; 7-in. csg. on bttm.; W.O.C.

Bennet-Kenyon Oil Co. No. 1 Schroeder, W. G. Banks Sur. T.D. 8,094 ft.; I.P. 700 B.P.D.; ¼-in. ck.

Bennett-Kenyon Oil Co. No. 2 B. Schroeder, W. G. Banks Sur. R.U.

Humble O. & R. Co. No. 1 Leake, W. K. Wilson Sur. T.D. 8,115 ft.; cmtd. 7-in. csg.; perf. csg. 8,035-40 ft.; tstg.

Humble O. & R. Co. No. 1 Mulley. Drlg. sd. 8,345 ft.

Pure Oil Co. No. 2-B Hutchens, P. G. Merritt Sur. Drlg. sh. 7,969 ft.

Pure Oil Co. No. 3-B J. W. Shelor, W. G. Banks Sur. R.U.

Stanolind O. & G. Co. No. 3 Damiani, W. K. Wilson Sur. Drlg. sh. 8,505 ft.

High Island—Galveston County

Stanolind O. & G. Co. No. 10 B.&O., M. Dunman Sur. 10¾-in. csg. 1,315 ft.

Stanolind O. & G. Co. No. 62-A Cade, M. Fitzsimmons Sur. T.D. 5,800 ft.; P.B. and sdtrkd.; T.D. 4,945 ft.; P.B. 4,525 ft.; drlg. sd.&L. 5,049 ft.

Stanolind O. & G. Co. No. 1 C. E. Smith, M. Dunman Sur. Drlg. sh.&L. 5,814 ft.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No 19 Brooks, G. W. Brooks Sur. T.D. 6,905 ft.; 7-in. csg. 6,895 ft.; tstg.

Republic Prod.-Houston Oil Co. No. 20 Brooks, G. W. Brooks Sur. Core 6,918 ft.

Republic-Houston Oil Co. No. 21 Brooks fee, G. W. Brooks Sur. Core 6,904 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 A. S. Moody, Reels & Trobough Sur. 10¾-in. csg. 2,522 ft.

Friendswood—Harris County

V. H. Borsodi No. 1 Ross, Thos. Choate Sur., Lot 11, Blk. 3, Sherman Place Subd. T.D. 6,020 ft.; I.P. 22 B.P.H.; ⅛-in. ck.

V. H. Borsodi No. 2 V. R. Taylor, T. Choate Sur. R.U.

Humble O. & R. Co. No. 1 Louise Beamer, Thos. Choate Sur. Drlg. sh. 2,975 ft.

Goose Creek—Harris County

Gulf Oil Corp. No. 7 Hirsch State Ld., Wm. Scott Lower Lge. Spd.

South Houston—Harris County

Stanolind O. & G. Co. No. 2 Mrs. Minnie Barrett et al, Unit 2, H.T.&B. Sur. No. 6. T.D. 1,480 ft.; cmtd. 9⅝-in. surf. csg. 1,476 ft.; T.D. 4,000 ft.

Stanolind O. & G. Co. No. 2 H. L. Bennett et al, Unit 13, H.T.&B. Sur. No. 6. Drk.

Stanolind O. & G. Co. No. 2, Drlg. Dist. No. 7. T.D. 4,000 ft.; 5¾-in. csg. 3,874 ft.; I.P. 182 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 2 H. G. Funk, Callahan and Vince Sur. 9⅝-in. csg. 1,479 ft.

Tomball—Harris County

Mabee Drlg. Co. No. 3 W. Baker, J. House Sur. R.U.

Edna—Jackson County

Steinberger Pet. Corp. No. 2 Druschell, Rodriguez Sur. Drlg. sh. 2,340 ft.

Ganado—Jackson County

Texas Co. No. 1 C. E. Niebuhr, Morris & Cummings Sur. No. 4. Drlg. sh. 4,603 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 4 Langham, C. Williams Sur. Drlg. sh. 6,228 ft.

Humble O. & R. Co. No. 7 Phelan, C. Williams Sur. T.D. 6,775 ft.; 5½-in. csg. 6,771 ft.; I.P. 570 B.P.D.; ¼-in. ck.

Humble O. & R. Co. No. 1 W. D. Sunter, C. Williams Sur. T.D. 6,785 ft.; perf. csg. 6,775-77 ft.

Glenn H. McCarthy No. 1-C Longe, H. Williams Sur. Oil sd. 5,380-5,406 ft.; 7-in. csg. 5,360 ft.; I.P. 550 B.P.D.; ¼-in. ck.

Stanolind O. & G. Co. No. 7 Sargl, H. Williams Sur. Drlg. sh. 5,227 ft.

Sun Oil Co. No. 2 Galley, A. Houston Sur. Drk.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2-B Pipkin,

Wm. McFadden Sur. T.D. 4,515 ft.; cmtd. 5¾-in. csg. on bttm.; abd.
Stanolind O. & G. Co. No. 2 May Fitzhugh, Wm. McFadden Sur. T.D. 4,047 ft.; 10¾-in. csg. 4,040 ft.
Stanolind O. & G. Co. No. 4-A Pipkin T.&N.O. Sur. Sh. 5,416 ft.; D.S. stuck; P.B. 5,005 ft.; W.O.C.

Fannett—Jefferson County

Gulf Oil Corp. No. 1 Junker-Spencer, W. H. Smith Sur. Spd.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur 18⅝-in. csg. 109 ft.; 9⅝-in. csg. 8,538 ft.; T.D. 9,951 ft.; 7-in. csg. 9,951 ft.; cd. gas sd. 10,043-46 ft.; cutting and pulling stuck D.S.

Nome—Jefferson County

Sun Oil Co. No. 6 Long, J. Blair Sur. T.D. 6,043 ft.; 5⅜-in. csg. 6,004 ft.; I.P. 12 B.P.H.; ¼-in. ck.
Sun Oil Co. No. 10 Paggi Est., J. W. Kirby Sur. T.D. 6,045 ft.; W.O.C.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 2 Phelan, S. Stevens Sur. Drlg. sh. 7,641 ft.

Cleveland—Liberty County

Gulf Oil Corp. No. 19-C Kirby, J. Pleasants Sur. Sd. 5,872-86 ft.; cmtd. 7-in. csg.; I.P. 601 B.P.D.; ¼-in. ck.
Gulf Oil Corp. No. 1 Neville, J. Pleasants Sur. R.U.

Hankamer—Liberty County

Gulf Oil Co. No. 25 E. W. Boyt, Amos Allen Sur. Sd. 5,983 ft.; D.S.T. rec. 50 ft. mud and no oil or wtr.

Hardin—Liberty County

Shell Pet. Corp. No. 1 Cessna, H. B. Johnson Sur. Drlg. sdy. sh. 5,613 ft.
L. W. Wickes No. 1 Lynott Buffman, J. Robinson Sur. Core 7,520 ft.
Woodley Pet. Co. No. 2-W. McMurtay, H. B. Johnston Sur. T.D. 1,694 ft.; P.B. 1,680 ft.; to sdtr.

Hull—Liberty County

Bishop Oil Co. No. 1 C. R. Wilson, J. Devore Sur. Oil sd. 780-88 ft.; T.D. 4,127 ft.; 7-in. csg. 2,204 ft.; perf. csg. 2,286-90 ft.; P.B. and sdtrkd.; S.D. 2,276 ft.; abd.
Houston Prod. Co. No. 2 Hannah, J. Devore Sur. T.D. 4,953 ft.; I.P. 687 B.P.D.; ¼-in. ck.
Texas Co. No. 8 Hannah fee, J. Devore Sur. T.D. 5,249 ft.; P.B. 3,800 ft.
Texas Co. No. 9 Hannah fee, J. Devore Sur. T.D. 2,778 ft.; P.B. to S.T. at 2,-541 ft.

Bay City—Matagorda County

Hamman Expl. Co. No. 2 J. C. Crook, E. Hall Sur. T.D. 8,162 ft.; 7-in. csg. 8,160 ft.; perf. 8,000-8,143 ft.; I.P. 470 B.P.D.; ¾-in. ck.
Hamman Expl. Co. No. 1 H. E. Thompson, Hall Sur. R.U.

Buckeye—Matagorda County

United North & South Development Co. No. 1 G.B.M., Cotton Lge. Drlg. 8,640 ft.

Hawkinsville—Matagorda County

Sun Oil Co. No. 2 Craig, T. Williams Sur. Top salt 796 ft.; base salt 2,099 ft., 18⅝-in. csg. 2,174 ft.; 13⅜-in. csg. 3,700 ft.; 9⅝-in. csg. 5,689 ft.; T.D. 5,969 ft.; hole cleaned; P. B. and sdtrkd.; making up 3-in. drill pipe; 7-in. csg. 6,044 ft.; T.D. 6,874 ft.; 5-in. csg. 6,874 ft.

Markham—Matagorda County

Turman Oil Co. et al No. 3 Hudson, H. Parker Sur. R.U.

Palacios—Matagorda County

Glenn McCarthy No. 2 Foley, L. Goodwin Sur. Sd. 7,849-92 ft.; 7-in. csg. 7,892 ft.; perf. 7,850-68 ft.; flwd. dist.; killed to W.O.
Glenn McCarthy No. 1 W. M. Rohls, sec. 10, L. Goodwin Sur. T.D. 8,843 ft.; D.S. stuck; perf. csg. 7,862-80 ft.; flwg. 10 bbls. dist.; T.P. 2,600 lbs.; C.P. 1,600 lbs.
Glenn McCarthy No. 1 Palacios State Bank, L. Goodwin Sur. T.D. 7,935 ft.; 7-in. csg. 7,391 ft.
Sun Oil Co. No. 1 Bay Shore Farms, Lewis Goodwin Sur. T.D. 8,843 ft.; D.S. stuck.

Orange—Orange County

Texas Co. No. 12 Kuhn, T. J. Nolgrass Sur. S.D. 6,091 ft.

Segno—Polk County

J. K. Dorrance No. 3 Wing, I.&G.N. Sur. No. 15. Old T.D. 5,447 ft.; P.B. sdtrkd.; drld. to 5,278 ft.; 7-in. csg. on bttm.; perf. 5,245-50 ft.
Gulf Oil Corp. No. 1-B Quinn. Drlg. sh. 4,885 ft.
La Quinta Oil Co. No. 7 Wing, I.&G.N. Sur. No. 15. T.D. 726 ft.
Gulf Oil Corp. No. 8 Wing, sec. 14, I.&G. N. Sur. Drlg. sh. 1,685 ft.

Refugio—Refugio County

Houston Oil Co. No. 33 Pratt-Hewitt-Rook. Thos. Mullen Sur. T.D. 6,126 ft.; cmtd. csg. 6,117 ft.

Spurger—Tyler County

Republic-Houston Oil Co. No. 4 Hurd, N. Hurd Sur. T.D. 7,658 ft.; 7-in. csg. 7,635 ft.; tstd. S.W.
Republic-Houston Oil Co. No. 5 Hurd fee, N. Hurd Lge. Drk.

McFadden—Victoria County

Transwestern Oil Co. No. 4, McFaddin Sur. Drlg. sd. 3,884 ft.

Placedo—Victoria County

Barnsdall-American Liberty Oil Co. No. 21 Pickering & Roos, S.A.&M.G. Sur. T.D. 4,770 ft.; I.P. 63 P.B.D.; ⅛-in. ck.
H. B. Ownby No. 3 T. P. Traylor, S.A.& M.G. Sur. No. 7. Drlg. sh. 3,937 ft.
T. N. Dev. Co. No. 1-A Henderson & Pickering, Wm. Rupley Sur. Spd.

Clay Creek—Washington County

Sun Oil Co. No. 7 Droeger, J. F. Perry Sur. Drlg. sh. 2,097 ft.

Five Corners—Wharton County

Texas Co. No. 8-B Pierce, J. Hyland Sur. T.D. 5,561 ft.; 7-in. csg. 5,555 ft.; flwg. S.W. and oil.

Magnet—Wharton County

Atlantic Ref. Co. No. 3-B Cockburn, Smith & McKenzie Sur. Cmtd. 10¾-in. csg. drlg. sh. 4,900 ft.
Humble O. & R. Co. No. 1 Cockburn, S. Castleman Sur. 10¾-in. csg.; 1,236 ft.; T.D. 5,550 ft.; 7-in. csg. 5,540 ft.; I.P. 18 B.P.H.; ¼-in. ck.
Peyton Bros. No. 1 Gish, Lot 2, Blk. 84, M.L.T. Co. Subd., Smith & McKenzie Sur. 10¾-in. csg. 1,112 ft.; T.D. 2,131 ft.

Pickett Ridge—Wharton County

Texas Co. No. 33-A Pierce Est., G.B.&N. Sur. No. 4; 9,000-ft. test. T.D. 8,408 ft.; P.B. and sdtrkd. 7,458-92 ft.; T.D. 8,408 ft.; P.B. and sdtrkd. 8,353 ft.

Withers—Wharton County

Texas Co. No. 31-C Pierce, Wm. Pettus Sur. T.D. 5,557 ft.; 7-in. csg. 5,552 ft. flwg. oil and S.W.
Texas Co. No. 36-C Pierce Est., Wm. Pettus Sur. Drlg. sh. 1,152 ft.
Texas Co. No. 1 A. C. Thompson, Blk. 3, Wm. Peters Sur. Drlg. sh.&L. 4,862 ft.

GULF COAST WILDCATS

Brazoria County

Jack Frazier et al No. 1 Temple Lbr. Co., H.T.&B. Sur. No. 35. Spd.
Humble O. & R. Co. No. 1 W. B. Munson, S. Carter Sur. R.U.
Ohio Oil Co. No. 1 Kempner Adams, H. T.&B. Sur. No. 33. Core 7,186 ft.
Pure Oil Co. No. 1 P. M. Slade S. I Austin Lge. T.D. 8,397 ft.; hole heaved to 8,120 ft.; cutting and pulling pipe.
Texas Gulf Prod. Co. No. 1 W. D. Adams, H.T.&B. Sur. No. 40. Drlg. sh. 4,867 ft.
Texas Co. No. 2 Robbins. James Brougham Sur. T.D. 7,600 ft.; sdtrkd.; T.D. 7,326 ft.

Chambers County

George H. Anderson et al, J. Janis Sur. T.D. 6,800 ft.; abd.

Fort Bend County

Research, Inc., No. 1 Moore, S. Kennedy Sur. S.D. 5,033 ft.

Galveston County

Maco Stewart No. 1 fee, Chas. Spillman Sur. Cmtd. 16-in. csg. 72 ft.; drlg. sh. 3,530 ft.

Harris County

Superior Oil Co. No. 1 Butler, Eehrhardt Sur. Cg. sh. 10,564 ft.
West Prod. Co. No. 1 Ammon Underwood, Nicklos Clopper Sur. Cg. sh. 8,-024 ft.

Jackson County

George W. Greet et al No. 1 J. R. Davis David Hoffman Sur. T.D. 6,991 ft.; cut and pulled stuck D.P. to 6,287 ft.; S.D. abd.

Liberty County

O. C. Garvey No. 1 A. C. Weaver, T. Devers Sur. Spd.
Humble O. & R. Co. No. 2 Sabine Tram, Malinda Whittington Sur. (Devers area). R.U.
J. G. Mayo et al No. 1 Gibbs Bros. Lbr. Co., J. D. Martinez Sur. S.D. 790 ft.

Matagorda County

Continental Oil Co. No. 2 Hawkins Est D. McCarty Sur. T.D. 7,212 ft.; D.S. stuck.

Montgomery County

J. W. Pfiffner No. 1 Spillar , R. Marsh Sur. T.D. 4,890 ft.; abd.

Newton County

Houston Oil Co.-Republic Prod. Co. No. 1 Peavy-Moore, sec. 42, H.&T.C. Sur. R.U.

Polk County

H. E. Williams & Thompson No. 1 Carter, H. Augustine Sur. T.D. 5,012 ft.; abd.

Tyler County

McArthur & Nixon No. 1 Kountze, J. A. Hankins Sur. S.D. 3,851 ft.

Victoria County

Stanolind O. & G. Co. No. 1 Henderson & Pickering, E. Benavides Sur. R.U.

Washington County

K. D. Harrison and C. E. Starr No. 1 Charles and Wm. Ellerman, Wm. Bridges Lge. 13-in. csg. 290 ft.

S. W. TEXAS WILDCATS

Aransas County

Barnsdall Oil Co. No. 2 Kate Edwards, 330 ft. S line, Lot 85, 660 ft. SW No. 1, Wm. Lewis Sur. T.D. 9,785 ft.; fsg.

Atascosa County

L. G. Priest No. 1 Bridwell, Tr. 45, Gorman Sur. D.&A.; T.D. 2,145 ft.

Bastrop County

Conservative Oil Co. No. 1 Wentland, F. Wilkerson Sur. T.D. 1,400 ft.; stdg.
Marts & Beavens No. 1 Gilliam, Thos. Garretson Sur. Drlg. 2,355 ft.
Hantho-Nelson, Inc., No. 1 Litton, 71-ac. tr., Cedar Ck. Community. T.D. 2,112 ft.; flwd. oil and bridged; cleaned hole; swbg.
Hantho-Nelson No. 2 Litton, 660 ft. W of No. 1, 75-ac. tr., Cedar Ck. Community. M.I.M.
R. Olson No. 1 Murchison, A. Litton Sur. Spd.; S.D.
Texas Northern Oil Co. No. 1 Barton, J. Rogers Sur. Drlg. 2,766 ft.

Bexar County

Edna May Oil Co. No. 1 Cassin, F. Rodriguez Sur. T.D. 1,349 ft.; set 7-in. csg. 1,138 ft.; completing.

Blanco County

H. T. Roe No. 4 Morrisey, Webb Sur. 91. D.&A.; T.D. 265 ft.

Brooks County

Mills Bennett Prod. Co. No. 1 Jones, 466 ft. N and E lines, Blk. 34, Sanchez Sur., La Rucia Gr. Drlg. 4,513 ft.
Standard of Tex. No. 1 Mestina, Mestina-Lse No. 3. T.D. 6,786 ft.; perf. 1,911-31 ft.; to test gas sd.

Caldwell County

Fred Adams No. 1 Shinn, A. Tinney Sur. Drlg. 2,812 ft.
Lanning & Coffield No. 1 Hanson, Guad. College Sur. T.D. 2,253 ft.; Edw. S.O.; set csg. 2,248 ft.; flwd. 100 B.P.D.; S.I.
Lanning & Coffield No. 1 Trammell, 150 ft. N line, 750 ft. E line lse., Guadalupe College Sur. Loc.
McNeill Pet. Co. No. 1 Martindale, H. McNeill Sur. R.U.
G. C. Richardson No. 1 Trammel, E. Berry Sur. D.&A.; T.D. ch. 2,222 ft.
L. H. Wilson No. 1 Wright, J. Roberts Sur. Drlg. sh. 1,667 ft.

Cameron County

Ruez-Morton No. 1 United Land Irr. Co., Lot 7, Blk. 402, El Jardin Subd. D.&A. 7,516 ft.

Comal County

J. R. Yates No. 1 Heidrich, Heidrich ranch. R.U.

Dimmitt County

Teas & Maryland Corp. No. 1 McKnight, Blk. 19, sec. 23. R.U.
H. F. Wilcox No. 2 Light ranch, 330 ft. S and W lines, sec. 29, I.&G.N.R.R. Sur., Blk. A. Drlg. sh. 3,172 ft.
H. F. Wilcox No. 3 Light ranch, 330 ft. N and W lines, sec. 113, I.&G.N.R.R. Sur., Blk. A. R.U.

Duval County

Baltimore Drlg. Co. No. 1 Afflerbach, Sur. 342. Set csg. 1,180 ft.; sd.; S.O.; prep. test.
V. L. Blanchard No. 1 Benavides, Blk. 59, Sur. 238. Drlg. 4,440 ft.
Hougen, Tr., No. 1 Patton, Sur. 148. S.D. 3,004 ft.
Humble O. & R. Co. No. 1 Davidson, 648-ac. tr., sec. 218. Drlg. sh. 2,690 ft.
Liberty Oil Co. No. 1 State, Sur. 216. T.D. 1,555 ft.; S.D.
Magnolia Pet. Co. No. 1 D.C.R.C., Sur. 259. Drk.
Penn-Palangana Oil Co. No. 2 Schallert, Sur. 239. Drlg. 2,813 ft.
H. J. Porter No. 1 Sevier, Palo Blanquito Gr. Spd.
Reynosa Oil Co. No. 1 Peters, 330 ft. N and W lines, SE¼, Sur. 37. D.&A. 2,-752 ft.
Standard Oil Co. of Texas No. 4 Gray, 330 ft. S and E lines, sec. 28, M. Gussett Sur. R.U.
Texas Canadian Oil Co. and Nelson No. 1 Luby Est., 330 ft. N line, 660 ft. W line, Blk. 10, Nelson Subd. Drlg. 5,-965 ft.
E. R. Thomas Est. No. 1 Pena, J. A. Garcia Sur. No. 8. M.I.R.
Tide Water Associated Oil Co. No. 2 Foster, Sur. 200. Sd. 2,467-73 ft.; odor oil; slight color; D.S. tstg.
Tsesmalis & Shipman No. 2 Canales, C SE¼, Lot 75. Set surf. csg.; S.D.
Woodley Pet. Co. No. 1 Parr. 100-ac. tr., San Andres Gr. Sd. 4,795-4,810 ft.; rocked in with 250 lbs. on tbg.; flwd. 6 B.P.H. P.L.O.; 15/64-in. ck.; C.P. 945 lbs.; T.P. 125 lbs.

Edwards County

Dan Auld No. 1 Henderson, sec. 46, Blk. "E." M.I.M.
Amon G. Carter No. 1 Sweeten, SE¼, Blk. 2, Sur. 49. Drlg. sh. 3,621 ft.

Frio County

Amerada Pet. Corp. No. 1 Harrigan, Flores Sur. 306. Lost hole: T.D. 6,410 ft.; P.B. 5,720 ft.; D.S.T. 5,433-5,720 ft.; good blow 3 hrs.; treated with 3,000 gal. acid; flwd. 25 min. and died; swbg. 281 B.P.D.

Goliad County

Goliad Oil Co. No. 2 Cole, lot 33, Goliad Town. Tr. Sur. Set protective csg. 4,-500 ft.; S.D. 5,687 ft.; W.O.O.

Guadalupe County

Mason Altgelt No. 1 Schubert, Esnaurizer Sur. Top chalk 763 ft.; drlg. to L. 991 ft.
R. T. Belcher No. 1 Fulshear, R. Smith Sur. D.&A.; T.D. Buda 2,310 ft.
Eddy et al No. 1 Smith, Hunter Sur. Drlg. 1,679 ft.
Felmont Oil Corp. No. 1 Anderson, 40-ac. tr., G. DeWitt Sur. R.U.
Moon O. & G. Co. No. 1 Penshorn, Vincente Duran Sur. Set 10-in. csg. 21 ft.; cg. 626 ft.

Hidalgo County

Dayle Smith No. 1 Fairbanks & Young, Blk. 44, Porc. 47. Cg. 2,315 ft.
Sulgrade Oil Co. No. 1 Mayer & Weill, Porc. 47. Drlg. sh. 3,752 ft.
Y. & B. Oil Co. No. 1 Waite, Tr. 382, Los Jidos Gr. Drlg. sh. 2,143 ft.

Jim Hogg County

Henry M. Brown No. 1 Gutierrez, sec. 22, Sh. 4, El Peyote Gr. Drlg. 357 ft.
M. J. Coffey No. 1 Vela, Sh. 4, Givens Subd., El Peyote Gr. Drlg. 1,316 ft.
French Oil Corp. No. 1 Vela, Sur. 573. Drlg. 2,827 ft.

Jim Wells County

Magnolia Pet. Co. No. 7 Seeligson, 10,433-ac. tr., Los Jaboncillos Gr. Sd. S.G. 6,-488-6,503 ft.; D.S.T. 6,488-6,503 ft.; rec. 60 ft. dist.; 1,000 lbs. W.P. 10-min.; took short core; well blew out and burned; shut in and killed.

Karnes County

DeGraff & Reele No. 1 Cochran, McConnel Lge. S.D. 1,307 ft.
Dinero O. & G. Co. No. 1 Kohler, 58.7-ac. tr., V. Blanco Sur. T.D. 4,154 ft.; D.&A.
Ivan Howard No. 1 Moczygemba, Erasmo Seguin 5, League Gr. Spd.; S.D.

Kendall County

Landon & Peffley No. 1 Seidensticker, Sur. 257, Chorcon Gr. Drlg. L. 153 ft.

Lee County

Jas. E. Pederson No. 1 Turner, Davie Hudson Sur. T.D. 6,132 ft.; swbg. wtr.; rainbow oil.

Live Oak County

Chas. Hanna et al No. 1 Wedding, 200-ac. tr., Haughy Sur. T.D. 600 ft.; S.D.
C. E. Jacobs et al No. 1 Nichols, S. S. Ryan Sur. 66. Set surf. csg. 470 ft.; W.O.C.
Mills Bennett Prod. Co. No. 1 Nichols, Patrick Henry Sur. R.U.
Ranco Oil Corp. No. 1 fee, 660 ft. NW and SW lines, Pointevent Sur. 3. Drk.

Maverick County

Rio Dev. Co. No. 4 State Bank & Trust Co., Sur. 2. Drlg. sh. 189 ft.
Wellington Oil Co. No. 1 Chittam, 330 ft. N line, 2,310 ft. W line, sec. 129, Blk. 7. Drlg. 1,795 ft.

McMullen County

Alabama Minerals Corp. No. 1 Gordon, SW¼, Sur. 127. R.U.; stdg.
Harrison & Danvers No. 3 Claunch, M. Hely Sur. T.D. sd. 1,074 ft.; set csg.; comp.; est. 10 B.P.D. on pmp.; perf. 1,057-70 ft.
Howell Oil Corp. No. 1 Martin, Sur. 213. S.D. 3,510 ft.
W. L. Hinds No. 1 Rhodes, NE¼, NW¼ sec. 54. Drlg. 1,817 ft.
E. M. Jones No. 6 Ezzell, NW¼, SE¼, Ragland Sur. 20. S.D. repairs; T.D. 2,-491 ft.
Rowan & Nichols No. 1 Rhodes, NE¼ sec. 18, Seale & Morris Sur. T.D. 2,004 ft.; P.B. 1,700 ft.; to sdtrk.; W.O.C.
Schimmel et al No. 2 Hagist, Sur. 467. Cor.; no report.
Pat Tinney No. 1 Rutherford, Blk. 17, Two Rivers Ranch Subd. Drlg. 221 ft.

Medina County

Frank Brown No. 1 Billhartz, 12 mi. E of Hondo. T.D. 1,460 ft.; D.&A.

Nueces County

Camp Prod. Co. No. 1-A Wardner, sec. 18, Stratton Subd. Drlg. sh. 3,850 ft.
Gillock et al No. 2 Poenisch, Lot 11, sec. 32. D.&A. 7,014 ft.
Southern Minerals Corp. No. 1 River Bros., 80-ac. tr., sec. 301. Cg. 5,873 ft.
Sam E. Wilson No. 1 Herold, Lot 2, sec. 6, Bohemian Colony Subd., Enrique Villareal Sur. W.O.O.; cg. 5,312 ft.

San Patricio County

Al Bobb No. 1 Green Est., 167.4-ac. tr., Williamson Sur.; (W.O.). Old T.D. 6,-800 ft.; set 5-in. csg. 7,000 ft.; T.D. 7,-299 ft.; D.&A.
Danray Oil Co. No. 1 Davis, Tr. 5, Wm Boyd Sur. T.D. 6,606 ft.; reported sd. 6,530-40 ft.; tstg.
Plymouth Oil Co. No. 1-A Odem, subd. 2 A. Herron Sur. D.S.T. 5,975-86 ft.; 15 min.; rec. 100 ft. oily mud, 75% oil; good blow gas; no W.P.
Wellington Oil Co. No. 1-B Welder, SE¼ sec. 6, Cubage & Miller Subd., Garza Sur. Drlg. 7,056 ft.

Starr County

Calderoni-James-Follette No. 1 Rodrigues, Blk. 6, Sh. 56. Porc. 80. Set 4½-in. csg. 1,483 ft.; T.D. 1,511 ft.; W.O.C.
Gilcrease Oil Co. No. 3 Castillo, Walker Subd., Porc. 77. Drlg. 813 ft.
E. J. Pearl No. 1 de la Garza, Sur. 262. R.U.
Transwestern Oil Co. and Davenport No. 3 Slick, sec. 527. Cg. dry sd. 5,013 ft.

Webb County

Chas. Andrus No. 1 Billings, sec. 10. Loc.
R. S. Boiling No. 1 Fort Worth Natl. Bank, Sur. 466. M.I.M.
Eugene Garner No. 3 Saldivar, 150 ft. S and E lines, Blk. 12, Sur. 657. Drlg. 531 ft.
French Oil Corp. No. 3 Garcia, N½, Sur. 1121. Loc.
O. W. Killam No. 2 Bruni, Blk. 83, Borrego Gr., El Ranchito Tr. Tstg. sd. 1,-500 ft.
E. J. Pearl No. 1 de la Garza, Sur. 262. Cg. sd. S.O. 1,981 ft.
Simon, Grossman & Katz No. 1 Saldivar, 600 ft. W line, 760 ft. N line, Blk. 11,

Garner Subd., Murrell Ranch Sur. 657. Drlg. 370 ft.
J. W. Magee No. 1 Garcia, Blk. 21, James Subd. Drlg. 1,456 ft.
Paul Meaders No. 1 Garcia, Sur. 338. Loc.

Willacy County

Ruez-Morton, Inc., No. 1 F. Armendias, C Lot 9, Sh. 4, San Juan de Carricitos Gr. Drlg. 537 ft.
Ruez-Morton, Inc., No. 1 Johnson-Stillman, Lot 14, Blk. 25, Sh. 44, San Juan de Carricitos Gr. S.D. 643 ft.

Wilson County

R. C. Stanley No. 2 Heirholzer, R. Salinas Sur. Oil sd. 1,025-30 ft.; rng. squeeze job 1,031 ft.

Zapata County

Allison & Abrams No. 1 Vela, Sur. 249 D.&A. 1,120 ft.
Harry Fansler No. 1 Gopher Trust Est., C Blk. 15, Sh. 6. D.&A. 1,320 ft.
Ray L. Martin No. 1 Vela, Blk. 44, Sh. 2, El Grullo Gr. Cg. sh. 1,169 ft.
Eugene Mays No. 1 Flores, Blk. 198, Doty Subd., Charco Redondo Gr. M.I.M.
United Prod. Co. No. 4 Jennings, San Antonio de Mira Flores Gr. Cg. sh. 527 ft.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 1-B Guarantee, Blk 13. Oil sd. 7,102-07 ft.; set 7-in. csg. 7,121 ft.; comp.; no gauge.
Atlantic Ref. Co. No. 5-C McCampbell, Lot 12, Blk. 39. Drlg. sdy. sh. 4,520 ft.
Atlantic Ref. Co. No. 6-C McCampbell, Lot 3, Blk. 42. Rng. screen.
Atlantic Ref. Co. No. 1-D McCampbell, Lot 16, Blk. 39. T.D. 7,120 ft.; P.B. and set csg. 6,612 ft. (cor.); perf. 6,544-47 ft.; comp.; 60 B.P.D.; ⅞-in. ck.; C.P. 700 lbs.
Atlantic Ref. Co. No. 2-A Murray. T.D. 7,050 ft.; washing in.
Atlantic Ref. Co. No. 2-B Murray, Lot 13, Blk. 12. Oil sd. 7,099-7,107 ft.; set csg. 7,110 ft.; W.O.C.
Atlantic Ref. Co. No. 1-C Murray, Lot 6, Blk. 38. Cg. 7,069 ft.
Atlantic Ref. Co. No. 1-C Porterfield, Lot 8, Blk. 10. Set surf. csg.; W.O.C.
Atlantic Ref. Co. No. 2 Scrivener. Lot 9, Blk. 11. Set csg. on 7,100-ft. sd.; drlg. plug.
Buckingham Oil Co. No. 5-A McCampbell, Lot 4, Blk. 39. Cg. 7,015 ft.
Buckingham Oil Co. No. 12-A McCampbell, Blk. 42. Drlg. plugs to perf.; sd. 7,091-7,144 ft.; set csg. 7,144 ft.
Buckingham Oil Co. No. 14-A McCampbell, Blk. 42. Sd. 7,103-17 ft.; set 7-in. csg. 7,120 ft.; comp.; no gauge.
Buckingham Oil Co. No. 1-B McCampbell, Lots 13 and 14, Blk. 40. O.W.W.O.; old T.D. 6,557 ft.; R.U. to D.D.
Buckingham Oil Co. No. 1-C McCampbell, 33.8-ac. tr., Blk. 27. Cg. 7,142 ft.
Danrey Oil Co. No. 1 Hay Est., Lot 13, Blk. 8. Perf. 7,096-7,102 ft.; comp.; no gauge; T.D. 7,134 ft.
Graham & Buckingham Oil Co. No. 1-D Porterfield, Lot 11, Blk. 9. M.I.M.
Landreth Prod. Co. No. 5-A McCampbell, Lot 4, Blk. 39. Drlg. 5,477 ft.
Neill & Peterson No. 1-A McCampbell, Lot 1, Blk. 43. Spd.
Peach Tree Oil Co. No. 1 Porterfield, Lot 16, Blk. 10. Oil sd. 7,117-23 ft.; set 7-in. csg. 7,125 ft.; W.O.C.
Rutherford Oil Corp. No. 1 Conn-Brown, Lot 14, Blk. 10. Sd. 6,743-61 ft.; O.&G.; T.D. 6,839 ft.
Rutherford Oil Corp. No. 1 Yarbrough, Lot 2, Blk. 37. Drlg. 2,031 ft.
Shasta Oil Co. No. 3 Davis, Lot 14, Blk. 9. Drlg. 3,660 ft.

Plummer—Bee County

W. C. McBride No. 2 Schneider, 600 ft. N of No. 2, Sur. 3. Sd. 3,030-69 ft.; re-cmtd. csg.; W.O.C.

West Tuleta—Bee County

Salt Dome Oil Co. No. 3 Tuleta Merchantile Co., SW¼, sec. 10, Wragley Subd., Uranga Gr. Jetting; T.D. 3,079 ft.

Alta Mesa—Brooks County

Standard of Texas No. 5 Mestina, Lease No. 1. 7-in. csg. set 3,220 ft.; T.D. 5,505 ft.; perf. 4,513-20 ft.; flwd. 280 B.P.D. on ¼-in. ck.; rng. tbg.
Standard Oil Co. of Texas No. 3 Garcia, Lse. 3. Set csg. 2,529 ft.; T.D. 2,555 ft.; drlg. plugs.
Standard Oil Co. of Texas No. 8 Mestina, Lse. No. 1. Rerng. tbg.

Alta Verde—Brooks County

Bishop & Woods No. 1 Maupin, Sur. 311. T.D. 1,007 ft.; no show; prep. core ahead.
Dick Young No. 5 Singer, Blk. 12, Sur. 312 (W.O.). T.D. 1,447 ft.; S.D.; W.O.O.
Star Dev. Co. No. 1 Singer, Blk. 8, Sur. 436. O.W.W.O.; old T.D. 948 ft.; perf. 801-18 ft.; set 5⅞-in. csg. 856 ft.; completing.

Branyon—Caldwell County

Adams & Richards No. 2 Flowers, D. Cooper Sur. Drlg. 517 ft.
Fred J. Adams No. 5-B Ellison, Cooper Sur. Set csg. 1,955 ft.; W.O.C.
Artz & Horner No. 4 Brown, J. R. Miller Sur. Drlg. 1,453 ft.
Baker & Freeman No. 3 Corder, J. A. Neill Sur. Prep. test 2,176 ft.
Cargill et al No. 1 Patton, J. R. Miller Sur. Drlg. 1,917 ft.
Hantho-Nelson, Inc., et al No. 1 Browne, J. R. Miller Sur. T. chalk 1,875 ft.; T.D. 2,075 ft.; set csg. 1,875 ft.; W.O.C.
Hantho-Nelson, Inc., No. 1 Union Central Life Ins. Comp.; 220 B.P.D.; T. chalk 1,970 ft.; T.D. 2,158 ft.
Lincoln Pet. Co. No. 8 Calliham, D. Cooper Sur. T. chalk 1,903 ft.; T.D. 2,113 ft.; comp.; no gauge.
Martell Pet. Co. No 2. Clark, J. R. Miller Sur. Drlg. 1,815 ft.
Martell Pet. Co. No. 1 Young, J. R. Miller Sur. Recmtg. 2,311 ft.
Memphis Nat. Gas Co. No. 4 Young, J. R. Miller Sur. Set csg. 2,087 ft.; W.O.C.
Sherman Nelson No. 2 Swearingen & Clark, John Neil Sur. Drlg. sh. 1,840 ft.
Universal O. & G. Co. No. 2 Calliham, Miller Sur. Drlg. sh. 519 ft.
Whisenant & Trenchard No. 2-A Magee, Neill Sur. Drlg. 1,917 ft.
R. S. Wyrick No. 3 Magee. Set csg. 2,060 ft.; W.O.C.

Buchanan—Caldwell County

Judge Bros. No. 1 Medlock, J. A. Neill Sur. R.U.
Kalb. Tr., No. 1 Bozarth, Wm. Spillar Sur. D.&A.; T.D.; chalk 2,480 ft.
McAlester Fuel Co. No. 1-B Browne, C. M. Cannon Sur. Comp.; 20 B.P.D. on pump; T.D. 2,265 ft.; T. chalk 2,070 ft.
Taylor Ref. Co. No. 1 Lynch, Wm. Spillars Sur. Set csg. 1,942 ft.; comp.; no gauge.

Luling—Caldwell County

Millican & Norman No. 3 Tolbert, J. Henry Sur. Comp.; 75 B.P.D.; T.D. L. 2,107½ ft.
Spokane O. & G. Co. No. 1 Hibbits, J. Henry Sur. Set surf. csg. 60 ft.; W.O.C.

Salt Flat—Caldwell County

Chiquita Oil Co. No. 5 Hickman, G. Hinds Sur. Set csg. 2,639 ft.; W.O.C.
Pagenkopf & Jamieson No. 2 Hanson, Hinds Sur. Swbg. 2,657 ft.

Charamousca—Duval County

N. V. Duncan No. 13 Worden-Draught, Sur. 151. T.D. 1,519 ft.; comp.; est. 50 B.P.D.
N. V. Duncan No. 14 Worden-Draught, Sur. 151. Drlg. 519 ft.

Driscoll—Duval County

Continental Oil Co. No. 16-A, Sur. 448. T.D.; sd. 2,807 ft.; set csg.; W.O.C.

Hoffman—Duval County

Bridwell Oil Co. No. 4 Green, Sur. 118. Sd. 2,702-08 ft.; comp.; 55 B.P.D. on ¼-in. ck.
Cox & Hamon No. 8 Green-Yoakum, Sur. 118. Comp.; 45 B.P.D.; ¼-in. ck.; sd. 2,741-46 ft.
Cox & Hamon No. 18 Green-Yoakum, Sur. 118. Comp.; 49 B.P.D.; ¼-in. ck.; sd. 2,750-59 ft.
Duval Oil Corp. No. 9-A Hoffman, Sur. 118. Drlg. 1,487 ft.
Duval Oil Corp. No. 10-A Hoffman, Sur. 118. Sd. 2,154-56 ft.; comp.; 95 B.P.D.; jetting.
Humble O. & R. Co. No. 1 Casas, Sur. 124. T.D. 3,018 ft.; D.&A.

Kohler—Duval County

Bunn Bros. & Coates No. 6-B Peters, Sur. 29. Drlg. sh. 170 ft.

Labbe—Duval County

Humble O. & R. Co. No. 8 Roos, sec. 119. Drlg. 2,257 ft.
Humble O. & R. Co. No. 9 Roos, sec. 119. T.D.; sd. 2,807 ft.; swbg.
Magnolia Pet. Co. No. 8 Labbe, Sur. 1. R.U.

Loma Novia—Duval County

Humble O. & R. Co. No. 23-C Welder, Sur. 554. Drlg. sh. 1,873 ft.

Loma Vista—Duval County

Wellington Oil Co. No. 4-A Welder, 263-ac. tr., Sur. 103. D.&A.

Lundell—Duval County

Gobt. Wells Oil Co. No. 5 Lundell, 2,310 ft. E line, 1,650 ft. N line, Sur. 140. Sd. 1,518-24 ft.; comp.; no gauge.

North Sweden—Duval County

Argo Oil Co. No. 5 Carrillo, Blk. 9, Sweden Farm Lots. T.D. 4,776 ft.; comp.; 60 B.P.D. on ⅞-in. ck.
Argo Oil Co. No. 6 Carrillo, 79.93-ac. tr., Blk. 9. Sd. 4,758-74 ft.; set csg. 4,761 ft.; W.O.C.
Argo Oil Co. No. 7 Carrillo, Blk. 9. Drlg. 1,285 ft.
Arkansas Fuel Oil Co. No. 4 Rossi, 100-ac. tr., Santos Flores Gr. Cg. 4,613 ft.
Benedum & Trees Oil Co. No. 5 Puig, San Andres Gr. Cg. 4,707 ft.
Bridwell Oil Co. No. 1 Anciro, 152-ac. tr., Blk. 19. Sd. 4,745-62 ft.; comp.; 108 B.P.D. on ⅛-in. ck.; 7-in. csg. at 4,746 ft.
Bridwell Oil Co. No. 2 Anciro, 152-ac. tr., Lot 19. Drlg. 376 ft.
Frank Gravis No. 2 Puig, sec. 24, San Andres Gr. Comp.; 114.6 B.P.D. on ⅛-in. ck.; sd. 4,804-12 ft.
Frank Gravis Oil Co. No. 3-A Puig, 100-ac. tr., San Andres Gr. Drlg. 1,779 ft.
Hiawatha Oil Co. No. 2 Parr, 330 ft. N and W lines, lse., San Andres Gr. No. 24. Drlg. 3,093 ft.
Navarro Oil Co. No. 1 Owen, Blk. 19. Drlg. 4,137 ft.
Nordan & Morris No. 1 West, 50-ac. tr., Santos Flores Gr. R.U.
Reynosa Oil Co. No. 3 Wilson, Santos Flores Gr. Drlg. 1,157 ft.
Russ Pet. Co. No. 4 Farias, sec. 9. Clg. into tanks.
Standard Oil Co. of Kansas No. 8 Parr, 80-ac. tr., San Andres Gr. Sd. 4,726-37 ft.; set csg. 4,722 ft.; W.O.C.
Standard Oil Co. of Kansas No. 3 Rossi, sec. 10, Sweden Farm Lots. T.D. 4,793 ft.; set csg. 4,773 ft.; comp.; 213 B.P.D. on ⅞-in. ck.; sd. 4,773-93 ft.
Standard Oil Co. of Kansas No. 8 Rossi, Santos Flores Gr. No. 25. Drlg. 2,107 ft.
Standard Oil Co. of Kansas No. 1 Southland Life, Flores Gr. Drlg. 2,186 ft.
Standard Oil Co. of Kansas No. 2 Walstad, Lot 9, Sweden Farm Lots. Sd. 3,903-23 ft.; D.S.T. rec. 150 ft. fluid 75% oil, 25% mud at 400 lbs. W.P. 6½ min.; T.D. 4,804 ft.; set csg. 4,784 ft.; comp.; no gauge.

Palangana—Duval County

Penn Palangana Oil Co. No. 1 C. K. Gravis Sur. 250. Cg. 6,031 ft.

Piedra Lumbre—Duval County

Sarnosa Oil Corp. No. 16 Well, 300-ac. tr., Sur. 130. Cg. 2,417 ft.

Sarnosa—Duval County

Magnolia Pet. Co. No. 21 D.C.R.C., sec. 100. Cg. 2,008 ft.
Sun Oil Co. No. 2 Rodriguez, sec. 222. Drlg. 2,723 ft.

Seven Sisters—Duval County

A. J. Brinkoeter No. 3-B Rodriguez, Sur. 212. T.D. 1,613 ft.; D.&A.
S. and D. Daube No. 36 Campos, Sur. 224. R.U.
Humble O. & R. Co. No. 22 Dowdy-fee, sec. 272. T.D. 2,554 ft.; comp.; 17 B.P.H.; jetting; oil sd. 2,542-52 ft.
Humble O. & R. Co. No. 23 Dowdy, Sur. 272. M.I. rig.

Sweden—Duval County

Hiawatha Oil Co. No. 1 Herberger, Sur. 14, Ball Subd., Agua Poquita Gr. Sidetracking 1,800 ft.; T.D. 5,896 ft.

Pearsall—Frio County

Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104 (W.O.). Set 7-in. protective csg. 10,341 ft.; milling.
Amerada Pet. Corp. No. 1 Kothman, 360-ac. tr., B. L. Crouch Sur. O.W.W.O.; comp.; 162 B.P.D.; ½-in. ck.; T.D. 5,559 ft.

Darst Creek Extn.—Guadalupe County

Kenedy & Crowley No. 1 Anderson, J. R. Robinson Sur. Set surf. csg. 22 ft.; W.O.C.
Texas Co. No. 8 Anderson, J. R. Robinson Sur. Drlg. sh.&L. 1,472 ft.

Manford—Guadalupe County

Atlantic Oil Inv. Corp. and Blackmar No. 1 Huff, Hodes Sur. T.D. 2,344 ft.; drlg. plugs.

Zoboroski—Guadalupe County

Felmont Oil Co. No. 3 Scheuneman, G. DeWitt Sur. Set csg. 2,350 ft.; comp.; 56 B.P.D., 56% wtr.; T.D. 2,485 ft.

LaBlanca—Hidalgo County

Atlantic Ref. Co. No. 1 Lewis, Blk. 214. Set csg. 8,600 ft.; perf. 8,100 ft.; clg. on ⅝-in. ck.; T.P. 2,800 lbs.; C.P. 2,100 lbs.
Dee Davenport No. 1 Swallow, Blk. 210. T.D. 7,564 ft.; P.B. 4,471-74 ft.; W.O.C.

Samfordyce—Hidalgo and Starr Counties

Kingwood Oil Co. and E. A. Graham No. 2 Yturria, 300 ft. E of No. 1, Porc. 100. R.U.

Sandia—Jim Wells County

Roy Gaines No. 1 Wade, Blk. "C," Bode Subd., Wade ranch. Drlg. sh. 3,821 ft.
L. L. Smith et al No. 1 Allen, Wade ranch. Spd.; S.D.

West Premont—Jim Wells County

Howard Presnall No. 1 Holmes, Lots 59 and 70, Blk. 76. Spd.

North Pettus—Karnes County

Magnolia Pet. Co. No. 17 Porter, B.&B. Sur. 23. Completing; T.D. 3,708 ft.

South Burnell—Karnes County

Dirks Bros. No. 1 Ruhmann, 177-ac. tr., Ballard Sur. T.D. oil sd. 3,624 ft.; set 5½-in. csg.; comp.; 312 B.P.D. on ⅞-in. ck.
Dirks Bros. No. 2 Ruhman, 177-ac. tr., Ballard Sur. Drlg. 3,260 ft.
Luling O. & G. Co. No. 2 Boyce, Ballard Sur. Oil sd. 3,671-76 ft.; D.S.T. 3,657-76 ft.; W.P. 90 lbs.; rec. 800 ft. oil and 90 ft. S.W.; T.D. 3,900 ft.; comp. sd. 3,671-73 ft.; est. 120 B.P.D. on ⅛-in. ck.

Kingsville—Kleberg County

Harry Edwards No. 1 Noack, Lot 4, Blk. 50, Subd. of town of Uriah. T.D. 3,535 ft.; S.D.
Humble O. & R. Co. No. 10 Kleberg, 660 ft. W of No. 6 Hughes, Blk. 39. D.&A. 4,010 ft.

Ezzell—McMullen County

E. M. Jones No. 8 Ezzell, Russell Sur. T.D. 1,573 ft.; perf. 1,543-53 ft.; completing.
Edwin M. Jones No. 10 Ezzell, H. Russell Sur. T.D. 1,533 ft.; completing; oil sd. 1,517-27 ft.
Edwin M. Jones No. 11 Ezzell, sec. 20, H. Russell Sur. T.D. sd. 1,535 ft.; compts.
Edwin M. Jones No. 12 Ezzell, sec. 23, H. Russell Sur. Set csg. 1,530 ft.; W.O.C.

Loma Alta—McMullen County

J. T. Lanier No. 1 Hagist, SE¼, N½, Sur. 481. Drlg. 2,497 ft.

Aqua Dulce—Nueces County

Conroe Drlg. Co. No. 1 Hagan & Stewart, sec. 206, Bishop Subd. T.D. sd. 6,814 ft.; perf. 6,456 ft.; tstd. dist.; to perf. higher.
Texon Drlg. Co. No. 2 Elliff, 3,054-ac. tr., Longorio Sur. Drlg. 4,337 ft.
United Prod. Co. No. 1 Harvey, 1,100 ft W line, 1,050 ft. N line. tr., M. Garza Sur. Set 5½-in. csg. 7,457 ft.; mudded and plugged 6,275 ft.
United Prod. Co. No. 3-A Rivers, sec. 9, Peters Subd. Drlg. sh. 8,167 ft.
United Prod. Co. No. 1 Schroeder, sec. 87, Paul Subd., Driscoll ranch. Drlg. sdy. sh. 6,132 ft.; (cor.).

Clara Driscoll—Nueces County

Houston Oil Co. No. 3 Sevier, 77.1-ac. tr., Quadrilla Irr. Co. Sur. T.D. sd. o.o. 3,903 ft.; D.S.T. 3,888-3,903 ft.; rec. 70 ft. mud and very little oil; 11 min.; T.A.
Mid-Continent Pet. Corp. No. 3 Sevier, R. Russell Sur. Drk.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 1 Chapman, Lot 5, Blk. 41. T.D. 6,664 ft.; prep. D.S.T.
Humble O. & R. Co. et al No. 1 Graham, Lot 15, sec. 41. Drlg. sh. 1,065 ft.
Humble O. & R. Co. et al No. 6-B Miller, sec. 48. T.D. 6,662 ft.; rng. csg.
Humble O. & R. Co. No. 3-A Ritter, Lot 23, Blk. 55. Drlg. sh. 1,394 ft.
Humble O. & R. Co. et al No. 3 Robberdeau, Lot 6, Blk. 49. Drlg. sh. 6,646 ft.
Humble O. & R. Co. No. 1 Swan, Lot 1, Blk. 54. T.D. 6,661 ft.; comp.; 166 B.P.D. on ⅛-in. ck.
Humble O. & R. Co. et al No. 1 Turcott, Lot 12, Blk. 56. T.D. sd. 6,659 ft.; set csg.; W.O.C.

London—Nueces County

Wellington Oil Co. and Seaboard Oil Corp. No. 1-B Lehman, NW¼, SE¼, sec. 25. Drlg. 6,947 ft.

Luby—Nueces County

Seaboard Oil Corp. No. 2 Luby, Blk. 4, Sh. 2. Set csg. 1,270 ft.; W.O.C.
Seaboard Oil Corp. No. 1 Schaeffer, Blk. 3, Sh. 2, Luby Subd. D.S.T. 6,847-6,900 ft.; rec. 40 ft. dist.; W.P. 500 lbs.; 5 min.; drlg. 7,113 ft.
Stanolind O. & G. Co. No. 1 McCann, 565.3-ac. tr. T.D. L. 6,627 ft.; tstg. 5,033-55 ft.

Saxet Heights—Nueces County

Wm. Brady No. 2 Whalen, Villareal Sur. R.U.
W. H. Harrison No. 3 McConnell, Blk. 5, Oak Park Addn. Set surf. csg. 307 ft.; stdg.
Taylor Pet. Co. No. 4 Dunn, Rincon del Oso Sur. Sd. 4,027-44 ft., T.D.; S.W. sd. 4,060 ft.; rmg.
Sam E. Wilson, Jr., No. 1 Moody, C Lot 14, Ellendale Gardens No. 2. Oil sd. 4,070-84 ft.; set 5½-in. csg. 4,090 ft.; completing.

Saxet—Nueces County

C. Andrade No. 8 Frank, 48-ac. tr., Sur. 500. Sd. 6,905-35 ft.; tstd. S.W.
R. B. Bryant No. 1 Frank, 50-ac. tr., Sur. 500. M.I.M.
R. B. Bryant No. 8 Frank, 40-ac. tr., Sur. 500. Sd. 6,919-51 ft.; perf. csg. 6,932-36 ft.; washing in.
Bryant & Howell No. 10 Frank, 40-ac. tr., Sur. 500. Drlg. 2,863 ft.
Bentex Oil Co. No. 3 Harmon, Sur. 416. Drlg. 3,273 ft.
Bryant No. 9 Frank, 40-ac. tr., Sur. 500. Cg. 5,918 ft.
Bryant & Howell No. 4 Kocurek, 25-ac. tr., Smith Sur. 25. Cg. 4,206 ft.
Bryant & Howell No. 2-B Plachy, 20-ac. tr., Smith Sur. 25. Drlg. 3,871 ft.
Bryant & Howell No. 4 Plachy, Sur. 25. Sd. 4,155-75 ft.; set csg.; drlg. plugs.
Crown Central Pet Corp. No. 5 Page, 75-ac. tr. Sd. 4,392-98 ft.; comp.; 160 B.P.D.; ⅞-in. ck.
Donico Prod. Co. No. 1 Donigan, 80-ac. tr., sec. 7, Rge. 6. Set csg. 4,900 ft.; perf. 4,551-55 ft.; washing in.
Donico Prod. Co. No. 6 Donigan, 80-ac. tr., sec. 7, Rge. 6. Drlg. below surf. csg.
L. Glasscock No. 1-A Johns, McGregor Sur. 582. D.S. tstg. 5,283-5,303 ft.
Tom Graham No. 5 Harmon, 34-ac. tr., Sur. 416. Sd. 6,932-39 ft.; perf. 6,917-25 ft.; tstd. S.W.; to test 6,700-ft. sd.
Greta Oil Corp. No. 2 Bliss, 25-ac. tr., Sur. 406. Set surf. csg.; W.O.C. 1,520 ft.
Greta Oil Co. No. 6 Humphries, Stevens Sur. Spdg.
Hiawatha Oil Co. No. 13 Hutchins-Stillwell, Blk. 30, Sheppard Farm Lots. Set csg. 1,140 ft.; W.O.C.
Houston Oil Co. No. 6 Harrell, Blk. 13, Sheppard Farm Lots. T.D. 4,726 ft.; re-run tbg.; jetting.
Houston Oil Co. No. 7-A Harrell, sec. 27, Sheppard Farm Lots. Drlg. sh.&L. 1,960 ft.
Houston Oil Co. No. 3 Isensee, Blk. 11, Sheppard Farm Lots. T.D. 4,868 ft.; drlg. plug.
Kepley Prod. Co. No. 6 Donigan, 100-ac. tr., sec. 7, Rge. 5. Sd. 4,862-76 ft.; set csg. 4,903 ft.; W.O.C.
Maryland Corp. No. 1 Gallagher, 110.5-ac. tr., Smith Sur. 25. Set csg. 4,252 ft.; perf. 4,120-22 ft.; cleaning.
Morgan & Chapman Minerals Corp. No. 9 Morgan-Clark, NE¼, Sur. 405. T.D. 6,945 ft.; S.D.; W.O.O.
Phillips Pet. Co. No. 6 Hutchins, Blk. 29, Sheppard Farm Lots. Set csg. 6,987 ft.; tstd. S.W. at 6,927-35½ ft.; perf. 6,739-42 ft.; flwg. into pits.
Phillips Pet. Co. No. 7 Hutchins, 60-ac. tr., Sheppard Farm Lots 29. Drlg. 6,467 ft.
Potter & Snowden No. 1 Taggert, Blk. 5, Sur. 401. S.D. 6,004 ft.
Renwar & Maryland No. 1-A Rand Morgan, Sur. 415. O.W.W.O.; old T.D. 5,825 ft.; T.D. 6,701 ft.; sd. 6,685-6,701 ft.; set csg.; perf. 6,695-6,700 ft.; setting 5½-in. csg. inside 7-in. csg. to plug csg. leak.
Republic Nat. Gas Co. No. 20 Dunn, Blk. 38, Sheppard Farm Lots. Perf. 6,725-40 ft.; 7-in. at 6,977 ft.
Richardson Pet. Co. No. 21 Cain & Sechrist, Blk. 23, Russell Farm Lots. Set

csg. 4,851 ft.; sd. 4,851-62 ft.; comp.; no gauge.
Richardson Pet. Co. No. 22 Cain & Secrist, Blk. 23, Russell Farm Lots. Set csg. 507 ft.; W.O.C.
Richardson Pet. Co. No. 6 Perkins-La-Gasse, 20-ac. tr., Sheppard Farm Lot 22. Cg. 5,227 ft.
Richardson Pet. Co. No. 12 Quiros, Sheppard Farm Lot No. 26. Drlg. 6,386 ft.
Richardson Pet. Co. No. 7 Sedwick, 124-ac. tr., Sur. 311. T.D. 6,945 ft.; perf. csg. 6,760 ft.; P.B. to test higher.
Richardson Pet. Co. No. 10 Sedwick, Sur 312. Sd. 4,842-62 ft.; set csg. 4,889 ft.; perf. csg. 4,407-11 ft.; comp.; no gauge.
Richardson Pet. Co. No. 11 Sedwick, 184-ac. tr., Dunn Sur. 312. Spdg.
Ben F. Smith No. 1 Ocker, Villareal Sur. T.D. 4,879 ft.; sh.; rmg.
Southern Minerals Corp. No. 5 Elder, 60-ac. tr., Sur. 311. Drlg. 6,654 ft.
T. & T. Oil Co. No. 5 Cain & Sechrist, 30-ac. tr., Lot 23, Russell Farm Lots. Sd. 4,865-72 ft.; comp.; 200 B.P.D.; 5/32-in. ck.
Texon Drlg. Co. No. 6 Scoggin, 50-ac. tr., Sur. 315. Drlg. 2,316 ft.
Warner Quinlan Co. of Tex. No. 5 Isensee, Blk. 1, Sheppard Farm Lots. Drlg. 3,693 ft.

Sullivan—Nueces County

Lockhart et al No. 1 O. Puri, Lot 2, sec 7, Ross Peters Subd. No. 2. Sd. 7,032-52 ft.; P.B. and sdtrkd.; went back in old hole 6,663 ft.; S.D.; W.O.O.

Midway—San Patricio County

Phillips Pet. Co. No. 3 Ivey, sec. "K," Pauls Subd. M.I.M.
Phillips Pet. Co. No. 2 Schmidt, sec. 83. Set csg. 5,389 ft.; perf. 5,338-40 ft.; tstd. S.W.; perf. 5,330-40 ft.; completing.
Phillips Pet. Co. No. 3 Schmidt, sec. 81. M.I.M.
Sun Oil Co. No. 1 Coggin, sec. 82. Set csg. 817 ft.; W.O.C.

Plymouth—San Patricio County

Plymouth Oil Co. No. 80-C Welder, sec. 70. Sd. 5,476-88 ft.; comp.; no gauge.
Plymouth Oil Co. No. 81-C Welder, sec. 70. Drlg. 3,021 ft.
Sun Oil Co. No. 3 Roundtree, sec. 34, Lot 4. Perf. 5,636-37 ft.; completing.

Taft Field—San Patricio County

Humble O. & R. Co. No. 26 Mayo, 320-ac. tr., Ottman Sur. Drlg. sh. 2,069 ft.
Humble O. & R. Co. No. 27 Mayo, 320-ac. tr., Ottman Sur. Drlg. hd. sd. 3,865 ft.

Barbacoas—Starr County

K. E. Merren No. 1-A S.C.C.C., Blk. 34 Lambeth Subd., Porc. 89. Set csg. at T.D. 5,640 ft.; sd. 5,470-91 ft.; flwg. in pits.
H. Mode No. 1 Starr County Cattle Co., Blk. 18, Jefferies Lambeth Subd., Porc. 89. Drlg. sd. S.O. 2,736 ft.

Cuevitas—Starr County

Sun Oil Co. No. 13-A Guerra, "A" Lse., Las Cuevitas Sur. T.D. 2,278 ft.; set 7-in. csg. 2,273 ft.; comp.; 56 B.P.D. on ¼-in. ck.

Ricaby—Starr County

Dean Bros. No. 1 Valadez, Porc. 84. Set csg. 87 ft.; W.O.C.
Dodd, Tr., No. 6 Wood Est., Porc. 84. R.U.
Sioux Oil Co. No. 5 Ricaby, M. Martinez Sur., Porc. 83. R.U.
Sun Oil Co. No. 4 Wardner, Porc. 84. Drlg. sdy. sh. 1,326 ft.

El Tanque—Starr County

Sun Oil Co. No. 3 Wardner, Porc. 84. Sd. 1,761-72 ft.; T.D. 1,777 ft.; comp.; 18 B.P.D. on ½-in. ck.

Rio Grande City—Starr County

Clopton et al No. 5 Tijerina, Lot 12, Blk. 14-C, Porc. 80. T.D. 1,412 ft.; D.&A.

Roma—Starr County

Texas Co. No. 6-A Guerra, Sh. 305-D Porc. 67. T.D. 3,650 ft.; swbd. to 2,500 ft.; flwd. gas with slight spray oil on 16/64-in. ck.; 7-in. at 3,540 ft.

Kilam—Webb County

C. H. Bailey No. 3 Garcia, Owens Sur. 786 Sd. 2,077-85 ft.; swbg.
Mills Bennett Prod. Co. No. 1 Garcia, 80-ac. tr., Sur. 786. Gas sd. 1,970-75 ft.; tstg. oil sd. 1,977-82 ft.; P.B. 2,017 ft.; set csg.; comp.; dry gasser; T.D. 2,020 ft.
Mills Bennett Prod. Co. No. 5 Garcia, 80-ac. tr., Sur. 786. R.U.

O'Hern—Webb County

Magnolia Pet. Co. No. 30 Benavides, Blk. 15, O'Hern & Secord Subd. Sd. 2,867-77 ft.; comp.; 240 B.P.D. on ½-in. ck.
Magnolia Pet. Co. No. 31 Benavides, Blk. 26. R.U.
J. J. O'Hern No. 8-C Benavides, S½, Blk 25, El Mesquite Gr. Sd. 2,869-81 ft.; comp.; 144 B.P.D. on ⅝-in. ck.
Starr Dev. Co. No. 1 Benavides, 330 ft. N and W lines, Sur. 173. M.I.M.
Sun Oil Co. No. 12 Benavides, Blk. 509. Drlg. 2,607 ft.

Oilton—Webb County

J. R. B. Moore No. 2 Garcia, 670 ft. E line, 220 ft. N line, Sur. 458. Sd. S.O. 1,914-27 ft.; set csg.; comp.; 300 B.P.D.; pmp.
Rowan & Hope No. 1 Laurel Bros., NW¼, Sur. 1006. M.I.R.

LaSal Vieja—Willacy County

Shell Pet. Corp. No. 2 Yturria, Sh. 64, Carricitor Gr. Drlg. 3,571 ft.

Escobas—Zapata County

Nordan & Morris No. 30 Bustimante, Sh. 33, Fansler Part. R.U.
B. W. Roscoe No. 19 Bustimante, S½, Sh. 33, Fansler Part. Sd. 1,167½-71½ ft.; comp.; 65 B.P.D.; T.D. 1,177½ ft.
B. W. Roscoe No. 21 Busimante, Sh. 33, Comitas Gr. Comp.; 40 B.P.D.; sd. 1, 194½-1,200½ ft.
B. W. Roscoe No. 22 Bustimante, Sh. 33, Comitas Gr. Comp.; est. 40 B.P.D.; T.D. 1,234 ft.
B. W. Roscoe No. 33 Bustimante, Sh. 33, Fansler Part. Sd. 1,167-71 ft.; set csg.; comp.; 40 B.P.D.; T.D. 1,180 ft.
Texas Co. No. 105 Jennings, Cerrito Blanco Gr. Set 7-in. csg. 1,273 ft.; W. O.C.; T.D. 1,316 ft.; P.B. 1,300 ft.

Haynes—Zapata County

J. P. Nash, Tr., No. 28 Haynes, Blk. 7. Haynes Subd. Sd. 1.064-68 ft.; comp.; 15 B.P.D.

NORTH TEXAS WILDCATS

Archer County

O. P. Darsey No. 1 J. T. Longley, sec. 1839, T.E.&L. Sur. Tstg. S.S.O. 951-53 ft.; P.O.P.
T. G. McCurdy No. 2 M. F. Martin, H. Grooms Sur. A-155. Set 6⅝-in. csg. 980 ft.

Clay County

W. Gant No. 4 C. M. Worsham, sec. 38, G. P. Meade Sur. 6⅝-in. 3,915 ft.; O.S. 3,923-32 ft.; tstd.; est. 1,000 B.P.D.

Collin County

F. Jones No. 1 Sherley, G. Morrison Sur. S.D.O. 3,003 ft.

Cooke County

Benton & Holmes No. 1 Gibson, J. English Sur. A-345. S.D.O. 3,010 ft.
Denver P. & R. No. 1 J. M. Pearce, S. C. Atkinson Sur. A-10. Pits.
Kiel & Kiel No. 1 Sears, Barnett Sur. L. 1,037-1,090 ft.; tstg.
L. A. McWhirter, tr., No. 1 W. J. Davidson, Geo. Dooley Sur. A-301. S.D.O. 715 ft.
F. W. Merrick, Inc., No. 1 Redman, J. W. Drummond Sur. Drlg. 1,650 ft.

Denton County

California Ref. Co. No. 1 W. & S. Life Ins. Co., B.B.B.&C. Sur. A-783. S.S.O. 1,461-65 ft; 6⅝-in. 1,460 ft.; W.O.C.; S.D.O.; drk. blown down.
Manning & Moore No. 1 Dora Ratchford, J. Walters Sur. T.D. 2,102 ft.; recmtg. 6⅝-in. 1,910 ft.
Scroggins et al No. 1 S. M. Freeman, Bradshaw Sur. A-104. S.S.O. 1,630-40 ft.; will test.

Foard County

J. B. Baker, Jr., No. 1 J. F. Long, sec. 295, H.&T.C. Sur., Blk. A. Drlg. 1,270 ft.
O. P. Burnham No. 1 Ward sec. 21, H.& T.C. Sur., Blk. 8. Drlg. 1,800 ft.

Grayson County

Denver P. & R. Co. No. 1 Cannon, A. Berry Sur. A-130. Cmtd. 6⅝-in. 2,388 ft.; S.S.O. 2,388-95 ft.; tstg.

Montague County

Montague Oil Co. et al No. 1 J. A. Brite, sec 2882, T.E.&L. Sur. Set 6-in. 3,927 ft.; S.S.O. 3,927-32 ft.; tstd. S.W.
J. W. Sorrell et al No. 1 J. E. Walthall, S. H. Smith Sur. A-662. S.D. 2,000 ft.
Ventex Investments, Ltd., No. 1 S. E. Bell, sec. 11, M.E.P.&P. Sur. Drlg. 3,300 ft.

Wichita County

Golding & Cochran No. 1 Mrs. Grace Jennings, sec. 12, H.T.&B. Sur. S.S.O. 1,584-97 ft.; est. 20 bbls. on test.
W. B. Hamilton No. 1 Mrs. M. Parker, M. Ramsey Sur. A-471. Drlg. 400 ft.
LeBus No. 1 J. F. Miller, W. R. Eaves Sur. A-447. Drlg. 1,510 ft.
W. B. Omohundro No. 1 First Natl. Co., sec. 28, W.V.F.L. Sur. Drk.
W. B. Omohundro No. 1 J. A. Kemp, Blk. 52, W.V.F.L. Sur. Drlg. 2,675 ft.
E. J. Stump No. 1 M. P. Bishop, L. Netherley Sur. A-240. Set surface pipe and S.D.

Wilbarger County

Barry & Hayes No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. Drlg. 2,220 ft.
W. W. McDonald No. 3 Waggoner A, sec. 26, H.&T.C. Sur. Testing lime 3,638-54 ft. with acid; P.B. and tstg. S.S.O. 3,-117-25 ft.

Wise County

Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. Showing gas 3,843-45 ft.; coring ahead.

Young County

H. J. Cox No. 1 W. T. Donnell, J. M. Smith Sur., sec. 1-7-1879. S.D.O. 1,810 ft.
Epenauer Drlg. Co. No. 1 J. B. Hazelton, J. Harmon Sur. A-1607. Drlg. 2,985 ft.
T. D. Humphrey No. 1 S. R. Ragland, T. B. Kuykendall Sur. Drlg. 3,150 ft.
Lupton & Long No. 1 W. I. Gilmore, J. Gilmore Sur. A-2135. Drlg. 2,370 ft.; drk. down.
H. Zweifel No. 1 R. D. Sewell, M. Case Sur. A-1402. Gas sd. 3,752-4,050 ft.; tested 2,750,000 ft. gas; 5-in. cmtd. 4,333 ft.; S.D.O. 4,490 ft.

E. C. TEXAS WILDCATS

Anderson County

C. & G. Oil Co. No. 1 F. A. Newson, T. C. Lively Sur., 3 mi. NW of Percilla. T.P.G. 4,636-4,870 ft.; drlg. ch.&sh. 5,646 ft.; top Austin by log 5,675 ft.
Humble O. & R. Co. No. 1 Mrs. S. Hassell, J. Beard Sur., 2 mi. N of Jarvis. Drlg. L.&sh. 2,795 ft.

Bowie County

Chew & Bassett No. 1 Barkman. S.D. 2,-851 ft.
Ferguson & Hill No. 1 Breckenridge. S.D. 2,900 ft.
Woodley & Bentley No. 1 Lumpkin. S.D. 4,843 ft.

Cherokee County

Merica Oil Co. (W. L. Stone) No. 1 Cherokee Dev. Co., 330 ft. E and 500 ft. S. A. J. Acker Sur., 2 mi. E of Maydelle. M.I.M.

Falls County

M. Hays et al No. 1 Mrs. J. J. Hodges, N. K. Robinson Sur., 5 mi. SW of Lott. Cg. 1,302 ft.

Fannin County

Stewart Drlg. Co. No. 1 N. Young, S. H. Hitchcock Sur., 1 mi. W of Randolph, 673 ft. N line, 1,074 ft. W line, and 6,950 ft. S line and 1,245 ft. E line sur., 20 ft. W. of Glazier & Trippe No. 1 Young dry hole. Drk.

Freestone County

Holt et al No. 1 W. H. Chambers, W. D. Allison Sur., 2¾ mi. N of Keechi 5,200-ft. test; drlg. chalk 4,089 ft.
C. E. Rossiter No. 1 J. P. Fulton in J. P. Fulton Sur., 2½ mi. E of Donie. S.D. 956 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, 550 ft. N and 37 ft. E, SE cor. of the Alex Ferguson Sur., but in M. Mann Sur., 2½ mi. SW of Longview Trinity test. R.U.

Henderson County

American Liberty Oil Co. et al No. 1 LaRue & Johnson, Blk. 11, P. Jackson Sur., 2 mi. W of LaRue. R.U.
Wm. McDougall No. 1 Trinity, F. & S. Land Co., Blk. 1, H.&T.C. Sur. Drk.
Tide Water Assoc. et al No. 2-C McElrath & Suggett, W. P. Wyche Sur., Georgetown 5,070 ft.; top Paluxy 6,087 ft.; top Glen Rose 6,282 ft.; 7,937-45 ft. porous L.; cg. sh. and oolitic L. 8,303 ft.

Houston County

American Liberty No. 2 J. A. Bean, W. Burke Sur., 1 mi. N of Grapeland, 200 ft. N line and 530 ft. W line sur., approx. 2,200 ft. E of No. 1. Drk. and M.I.R.

Leon County

Kelly & Fox No. 1 Bryant, A. M. Coultern Sur., 1 mi. E Marquez, approx. 300 ft. N. S.L. and 1,000 ft. E of R.R. R.U. shallow test.

Limestone County

Pure Oil Co. No. 16-T Kendrick P. Vorella Sur., Mexia field. T.D. 6,358 ft.; setting whipstock back in old hole.
Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500-ft. test; R.U.

Morris County

J. O. Whittington No. 1 Joiner Leasing Co., T.C.R.R. Sur. No. 734, 8 m. NW Naples, 700 ft. E of Estly W line and 2,600 ft. F.N.L. Sur. M.I.M.

Nacogdoches County

G. C. Collier and Corley No. 1-A A. T. Mast, 14 mi. SW of Nacogdoches, T. S. Lambert Sur., 750 ft. N of No. 1. R.U.

Navarro County

T. Sharpe et al No. 1 E. B. McDowell, T. Jordan Sur., ½ mi. S of Bassets. S.D. 2,300 ft.

Red River County

Roy I. Carter Drlg. Co. No. 1 J. A. Tutt, C 40-ac. tr. in D. Hart Sur., 2 mi. S of Avery. S.D. 410 ft.
Texas Trading Co. No. 1 Southern Pine Lbr. Co., D. Burton Sur., 12 mi. N of Clarksville. Cd. wtr. sd. 2,073-2,121 ft.; drlg. 2,133 ft.

Rusk County

J. Merrick et al No. 1 Tipps, T. Uzzell Sur., 6 mi. S of East Texas field. Top sd. 3,886 ft.; pulling tubg.; T.D. 3,890 ft.
Nivia Oil Co. No. 1 Citizens Natl. Bank, M. D. Carmel Sur. 2½ mi. SE of Henderson. Cg. fossiliferous L. 6,469 ft.
J. W. Shipman et al No. 1 Citizens Bank, J. J. Y'Barbo Sur., 4 mi. NE of Henderson. S.D. 4,340 ft.

EAST TEXAS

(Border Counties)

Cass County

Bay Oil Corp. No. 2 Geo. Parker, G. Crowder Sur. Drlg. 3,700 ft.
R. W. Norton No. 4 Davis, H. Holbert Sur. Comp.; flw. 10 B.P.H.; T.D. 5,980 ft.
R. W. Norton No. 1 Hussey, P. Evans Sur. 7-in. cmtd. 6,025 ft.; T.D. 6,082 ft.; W.O.C.S.
R. W. Norton No. 8 Davis, H. Holbert Sur. Comp.; flw. 178 B.P.D.; T.D. 6,-067 ft.
R. W. Norton No. 2 Hussey, P. Evans Sur. Drlg. 3,112 ft.
Ohio Oil Co. No. 20 E. P. Willis, S.F.I.W. Sur. Drlg. 5,629 ft.
W. G. Ray Drlg. Co. No. 2-B Geo. Parker, G. Crowder Sur. Drlg. 5,218 ft.
United Prod. Co. No. 4 Allday, P. Evans Sur. T.D. 6,016 ft.; swbg.
United Prod. Co. No. 4 V. Bivens, J. Collom Sur. Drlg. 5,819 ft.
United Prod. Co. No. 1 Baugus Unit, Cass Co. Sch. Ld. Sur. 7-in. 6,000 ft.; T.D. 6,018 ft.
United Prod. Co. No. 2 Baugus Unit, Cass Co. Sch. Ld. Sur. Comp.; flw. 18 B.P.H.; T.D. 6,012 ft.
United Prod. Co. No. 1 fee, H. Holbert Sur. 7-in. 5,987 ft.; T.D. 6,070 ft.
United Prod. Co. No. 2 fee 575, B. Holms Sur. R.U.
United Prod. Co. No. 1-A Starke, D. Gilliam Sur. Drlg. 5,923 ft.
United Prod. Co. No. 2-A Starke, D. Gilliam Sur. Drlg. 4,700 ft.

Harrison County

J. B. Bond et al No. 1 Bailey & Martin, Geo. Martin Sur. Drlg. 2,410 ft.

Marion County—Rodessa

Arkansas-La. Gas Co. No. 1 Emma Ford, A. D. S. Coy Sur. Drlg. 6,066 ft.
Arkansas-La. Gas Co. No. 1 J. P. Fant, L. P. Cadenhead Sur. Cg. 6,188 ft.; S.O.
Fohs Oil Co. No. 2 M. Reynolds, A. D. S. Coy Sur. Drlg. 1,981 ft.
Gulf Prod. Co. No. 1 L. Henderson, R. Bennington Sur. Drlg. 5,048 ft.
Holcomb & Thomason No. 1 L. Henderson, C Lots 4 and 6, R. Bennington Sur. Drlg. 4,320 ft.
Mid-Continent Pet. Corp. No. 2 Sory, A. D. S. Coy Sur. Drlg. 3,842 ft.
Mid-Continent Pet. Corp. No. 3 Sorry, A. D. S. Coy Sur. Drlg. 5,315 ft.
Hunter Co. No. 3 Fonda, A. D. S. Coy Sur. Drlg. 5,300 ft.
Shell Pet. Corp. No. 1 L. Henderson, R. Bennington Sur., Lot 8. R.U.

Panola County

Danciger O. & G. Co. No. 1 Tatum, A. Bissell Sur. Drlg. 4,010 ft.
Magnolia Pet. Co. No. 2 E. A. Hull, Thos Applewhite Sur. Drlg. 7,738 ft.

Shelby County

C. A. Parker, Jr., No. 1 W. D. George, Clement Tutt Sur. S.D. 1,450 ft.; wtr.
Portex Oil Co. No. 3 W. R. Pickering, A Hanson Sur. Comp.; 75,000,000 ft. gas and 5 bbls. dist. per hr.; T.D. 5,089 ft.
Siler and Riley No. 1 Rushing, M. Smith Sur. S.D. 3,020 ft.; cor. depth.

WEST TEXAS WILDCATS

Andrews County

Amerada Pet. Corp. No. 1 L. Littman sec. 6, Blk. A-29, P.S.L. Sur. T.D. 4,777 ft.; P.B. to 4,369 ft.; swbd. 98 per cent wtr.; S.D.O.
American Liberty O. Co. No. 1 E. Cowden sec. 14, Blk. A-55, P.S.L. Sur. S.D. 5,002 ft.
W. G. Blanchard et al No. 1 Cox, C SW sec. 4, Blk. A-30, P.S.L. Sur. D.&A. 4,-655 ft.
M. J. Delaney No. 1 E. P. Moore, sec. 12, Blk. A-20, P.S.L. Sur. T.D. 4,579 ft.; shot with 4 qts.; 25% oil.
Drlg. & Expl. Co. No. 1 Thornberg, sec. 8, Blk. A-42, P.S.L. Sur. Loc.
M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. S.D. 179 ft. for rotary.
Sinclair Prairie Oil Co. No. 2 Emma Cowden, sec. 11, Blk. 44, Twp. 2n, T.&P. Sur. T.D. 4,377 ft.; P.B. to 4,310 ft.; shot; flwd. 20 B.W. and 20 B.O.; 24 hrs.
Hargrove et al No. 1 Riordan, NW¼, sec. 10, Blk. A-44, P.S.L. Sur. Drlg. 4,960 ft.
Landreth Prod. Co. No. 1 L. Jones, sec. Blk. A-42, P.S.L. Sur. Drlg. 4,467 ft.; 5 B.O.P.H.; through csg.

Bailey County

Etz & Robinson No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. Drlg. 265 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. Drlg. 5,998 ft.
Storey No. 1 Wilson, sec. 3, Blk. 212, T.& St. L. Sur. S.D.; repairs.

Cochran County

Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26, League 92, Lipscomb Co. Sch. Ld. T.D. 4,800 ft.; S.D. for tools.

Coke County

H. E. Ogden et al No. 1 Rawlins, sec. 390, Blk. 1-A, H.&T.C. Sur. S.D. 515 ft.

Crane County

Gulf Oil Corp. No. 2 McKnight, sec. 9, Blk. B-21. Drlg. 5,404 ft.; P.B. to 3,450 ft. R.U.R.

Crockett County

R. H. Henderson No. 1 C. B. Haun et al, D.&B.; elev. 2,238 ft.; sulfur wtr. 1,303 ft.
Moore Bros. No. 1 P. Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 420 ft.
Superior Oil Co. of Calif. No. 1 J. S. Todd, C SE¼ sec. 55, Blk. UV, G.C.&S.F. Sur. Top Ellen. 7,424 ft.; drlg. 7,948 ft.; will test shallow shows.

Dawson County

R. Allbaugh No. 1 Higgenbotham, Labour 24, League 269, Moore Co. Sch. Lds. Loc.
R. Albaugh No. 1 D. Hogg, SE of SE sec. 17, Blk. 34, Twp. 4n, T.&P. Sur. Drlg. 1,890 ft.
E. L. Wilson No. 1 Scanlon, Sec. 83, Blk M, E.L.R.R. Sur. T.D. 4,763 ft.; S.D.; repairs.

Dickens County

C. E. Litchfield No. 1 Harris, sec. 354, Blk. 1, H.&G.N. Sur. S.D. 1,500 ft.

Edwards County

A. P. Carter No. 1 F. D. Sweeten, S&E

sec. 48, Blk. 2, B&B Sur., 1½ mi. E of Rock Springs. S.D. 700 ft.

Ector County

Fuhrman Pet. Corp. No. 1 E. Cowden, sec. 41, Blk. 43, Twp. 2s, T.&P. Sur. T.D. 200 ft.; drlg. plug.
Shasta Oil Co. No. 1 K. Sands, sec. 32, Blk. 44, T.&P. Sur. Drlg. 4,226 ft.

Fisher County

Anderson & Kerr No. 1 Caldwell, sec. 169, Blk. 2, H.&T.C. Sur. Drlg. 3,040 ft.

Gaines County

Amerada Pet. Corp. No. 1 Cox, NW cor. sec. 380, Blk. G, C.C.S.D.&R.G.N.G. Sur. Drlg. 4,612 ft.
Amerada Pet. Corp. No. 1 Matthews, sec. 417, Blk. G, C.C.S.D.&R.G.N.G. Sur. T.D. 5,018 ft.; to test; T.P. 4,920-50 ft.
Argo Royalty Co. No. 1 Jones. Drlg. 5,096 ft.
Carter et al No. 1-B Wasson, sec. 47, Blk. AX, P.S.L. Sur. T.D. 4,850 ft.; set csg.
Continental O. Co. No. 1 Jones, sec. 22 Blk. A-7, P.S.L. Sur. P.B. to 5,021 ft.; swbg. csg.
Continental Oil Co. No. 1 Moore, sec. 46, Blk. AX, P.S.L. Sur. T.D. 4,995 ft.; tstg.

Glasscock County

Moore Bros. No. 1 King, sec. 46, Blk. 36, Twp. 1s, T.&P. Sur. Drlg. 3,887 ft.

Hockley County

Frank A. Bates No. 1 Lockett, C of NE of S sec. 5, Blk. 1, P.S.L. Sur. Drlg. 2,050 ft.
Stanolind O. & G. Co. No. 1 A. A. Slaughter, C SW¼ Labour 76, League 37. Zavalla Co. Sch. Lds. Sur. Drlg. 4,796 ft.

Howard County

Iron Mt. Oil Co. No. 1 D. H. Snyder, sec. 28, Blk. 30, Twp. 1s, T.&P. Sur. T.D. 2,900 ft.; shot; flowed 380 bbls. first 11 hrs.; fishing bit.
W. F. McDermott et al No. 1 Lucas, sec. 18, Blk. 29, Twp. 1n, T.&P. Sur., 5 mi. N of Dodge pool. T.D. 100 ft.; set csg.; shale; S.D.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6. Drlg. 3,076 ft.

Jeff Davis County

H. D. Wilcox et al No. 1 Jones-Coffield. Drlg. 3,010 ft.

Loving County

Barnett Pet. Co. No. 1-A Johnson, sec. 2, Blk. 57, Twp. 1, T.&P. Sur. Drlg. 1,255 ft.
Barnett Pet. Corp. No. 1-B W. D. Johnson, sec. 12, Blk. 56, Twp. 1, T.&P. Sur. Spd.
Continental Oil Co. No. 1 E. C. Marrs, sec. 20, Blk. 54, Twp. 2, T.&P. Sur. Drk.
Woodley Pet. Co. No. 1 Kioh, sec. 21, Blk. 55, Twp 1, T.&P. Sur. Fsg. drill pipe 3,461 ft.

Mitchell County

Harris & Anderson No. 1 A. F. King, sec. 11, Blk. 28, Twp. 1s, T.&P. Sur. Drlg. 2,959 ft.
Mitchell O. & G. Co. No. 1 Z. Morrison, sec. 36, Blk. 29, Twp. 1n, T.&P. Sur. T.D. 3,157 ft.; will acd.

Nolan County

M. S. Ingleright & L. E. Hults No. 1 Blank, Blk. 1-A, H.&T.C. Sur., near Decker, 4,000-ft. test. Loc.

Pecos County

Cannon & Cannon No. 1 University, sec. 2, Blk. 20. No report.
K. Kimberlin No. 1 Humble-Young, sec. 49, Blk. 10, H.&G.N. Sur. Drlg. 1,613 ft.
Phillips Pet. Co. No. 1 Grierson, sec. 71, Blk. QW, T.C.R.R. Sur., 10 mi. NW of Fort Stockton. Drlg. 2,840 ft.
G. J. Smith No. 1 W. E. Smith, sec. 37, Blk. 1, I.&G.N. Sur. Drlg. 2,692 ft.;
Tex-Mex Pet. Co. No. 1 Williams, sec. 79½, Blk. 8, H.&G.N. Sur. No report.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. S.D.O.; T.D. 5,804 ft.
Trans-Pecos Oil Co. No. 1 Popham. T.D. 535 ft.; lost hole; skd. 25 ft. south; now drlg. 355 ft.
W. K. Tully No. 2 Perry. T.D. 1,920 ft.; to shoot.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk 12, G.H.&S.A. Sur. Drlg. 4,375 ft.; show 2½ B.O.P.D.
Sadler Bros. et al No. 1 Bagley. S.D. 3,315 ft.

Reagan County

K. E. Sherman No. 1 W. E. Friend, SW cor. sec. 3, Wm. Allen Sur. Drlg. 2,072 ft.; S.D. for repairs.
Moore Bros. No. 1 University, sec. 8, Blk. 7. Drlg. 1,620 ft.

Reeves County

Barnett Pet. Corp. No. 1 Ely, sec. 38, Blk. 71, P.S.L. Sur., 12 mi. NW of Toyah. Drlg. 1,290 ft.
General Crude Oil Co. No. 1 T. P. Lane Trust, C NE¼ sec. 15, Blk. 56, Twp 2, T.&P. Sur. T.D. 3,495 ft.; tstg.

Runnels County

Hall Oil Co. No. 1 Beddo, sec. 51, Thompson Casey Sur. R.U.R.
K Z Oil Co. No. 1 B Fletcher, E. C. Good Sur. Drlg. 2,459 ft.
Price & Kramer No. 1 Giesecke, Blk. 227, Hughes Sur. D.&A. 2,503 ft.
Stevens & Glover No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NE of Ballinger S.D. 480 ft.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. L, G.H.&S.A. Sur. T.D. 4,010 ft.; S.D.; rep.
Tex.Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. Drlg. 2,230 ft.

Scurry County

C. W. Guthrie et al No. 1 F. W. Hardee, sec. 99, Blk. 97, H.&T.C. Sur. S.D.

Terry County

Anthony & Rice No. 1 Brownfield, C NW¼ sec. 28, Blk. A-1, E.L.R.R. Sur. T.D. 4,536 ft.; W.O.C.T.
R. L. Foree No. 1 A. E. Pool, sec. 54, Blk. D-11, D.&S.E. Sur. S.D. 4,847 ft.; waiting on tools.

Upton County

Maverick Oil Co. No. 1- Holmsley, sec. 16, Blk. B, C.C.S.D.&R.G.N.G. Sur., 14 mi. NE of Rankin. Drlg. 3,015 ft.

Ward County

F. H. Murphy et al No. 1 Monroe, sec. 210, Blk. 34, H.&T.C. Sur. T.D. 4,835 ft.
Mahres No. 1 Wilson, sec. 133, Blk. 34, H.&T.C. Sur. T.D. 5,094 ft.; S.D. for tbg.
L. F. White et al No. 1 Rector-Monroe, cor. sec. 3, Blk. 1, W.&N.W. Sur. Top Del. L. 4,635 ft.; top Del. sd. 4,670 ft.; shot 80 qts. 4,680-4,705 ft.; C.O.; T.D. 4,710 ft.; flwd. 105 B.O. in 3½ hrs.

Winkler County

Champlin No. 2 Cowden, sec. 2, Blk. 12, P.S.L. Sur. T.D. 2,925 ft.; shot; 150 B.O.; tstg.

Yoakum County

Bohago & Bond No. 1 West, sec. 606, Blk. D. T.D. 5,255 ft.; swbg.
Denver Dev. Co. No. 1 Whittenburg, sec. 831, Blk. D, J. H. Gibson Sur. Drlg. 5,015 ft.; S.D. for tbg.
Moore Bros. No. 1 Cleveland, sec. 706, Blk. D, J. H. Gibson Sur. Drlg. 5,055 ft.
Texas Co. No. 1 Walker. Drlg. 4,870 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

C. R. Cox, Tr. No. 1 Jan Lee, 1,220 ft. from N and 600 ft. from E of SW¼ sec. 11, B.B.B.&C. Sur., NE cor. county. Loc.
W. T. Daniels et al No. 1 Joyner, 1 mi. S Brownwood, T. Smith Sur. No. 600, Abst. 821. Drlg. 675 ft.
Gariand Moore et al No. 1 T. S. Williams, 1 mi. NE Grosvenor. Sec. 40, H.T.&B. Sur., Abst. 2037. Spdg. & S.D.

Callahan County

Hal Hughes No. 1 Poindexter, 330 ft. fr. N&E of sec. 350, Geo. Hancock. Sur. 2 mi. NE of Oplin. S.D. for water.
J. C. Jackson et al No. 1 Thompson, 2 mi. S Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,350 ft.
Hugh King, Jr. et al No. 1 K. B. Legett, 7 mi. W Clyde, sec. 7, Blk. 8, S.P.R.R. Sur. Top sand 1,778 ft.; est. 500,000 ft. gas.
Phillips Pet. Co. No. 1 Cozart, 1 mi. NW Scranton, 330 ft. from N and E lines of farm in M. Cherry Sur. Loc.
R. F. St. John No. 1 J. A. Hinshaw, Subd. 9, sec. 29, S.P.R.R. Sur., Blk. 8. Drlg. 1,710 ft.
Ungren & Frazier No. 1 Ross Est., 1 mi. NW of Baird, 220 ft. from S and W of N½ N¼ sec. 103, B.B.B.&C. Sur. Drlg. 950 ft.

Coleman County

Dixie O.&G. Co. No. 1 Reaves, 6 mi. NW Bangs, J. M. Rhine Sur. No. 629. S.D. 805 reprs.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuykendall Sur. T.D. 4,165 ft.; U.R. 8¼-in. csg.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N Cisco, 330 ft. from N and W of sec. 496, S.P.R.R. Sur. R.U.S.T.
Monark O. & G. Co. No. 1 Downtain, sec. 14 H.&T.C. Sur. Blk. 4, 3 mi. N Eastland. S.D. 1,250 ft.

Erath County

Jess Hickey et al No. 1 W. M. Martin, 2 mi. SE Desdemona, D. J. Otho Millard Sur. A-533. Top sand 2,835 ft.; good show oil through cavings; S.D. for 6⅝-in. csg.

Haskell County

E. W. Marland & H. B. Drake No. 1 Corothers, 6 mi. S Haskell, sec. 67, D. E. Zaaz Sur. S.D. 2,280 ft.

Jack County

Bennett Pet. Corp. No. 1 J. S. Rhodes, 2½ mi. NE Bryson, 250 ft. from S and 330 ft. from W of W. Higgins Sur., Abst. 2,199. Loc.
J. P. Burrus No. 1 W. J. Eatherly, J. Helmstutler Sur. T.D. 1,200 ft.; drlg. by tools.
G. M. Gillespie No. 1 O. Loving, sec. 3345, T.E.&L. Sur., 2 mi. SE Jermyn. O.S. 3,169-74 ft.; T.D. 3,211 ft.; rng. 5-in.
W. H. Hammon No. 1 Rhodes, 1 mi. N Rhodes pool. Sd. 2,926-38 ft.; shot 60 qts.; C.O.
Hanlon-Buchanan, Inc., No. 1 Lindsey, 7 miles NW of Jacksboro, 990 ft. from E line and 330 ft. from S line, I. N. Wright Sur., Abst. 898. Drlg. 2,300 ft.
H. B. Madden No. 1 J. L. Mask, sec. 2708, T.E.&L. Sur. S.D. 1,831 ft.
Nelson Oil Synd. No. 1 Henderson, 2 mi. SW Bryson, 330 ft. from N line and 990 ft. from E line of farm in A. S. Ensworth Sur., Abst. 1,789. Loc.
Panhandle Ref. Co. No. 1 D. R. Sewell, 4 mi. E of Bryson, 3,641 ft. from S line and 990 ft. from W line, Mary Hamilton Sur., Abst. 262. Drlg. 2,835 ft.
R. A. Westbrook No. 1 W. Knox, sec. 83, B.B.B.&C. Sur. Drlg. 3,000 ft.
Joe Worsham et al No. 1 Cash, 3½ mi. NE of Bryson, 990 ft. from E and 330 ft. from S lines of farm in I. White Sur., Abst. 895. Drlg. 1,823 ft.

Jones County

Brown Eagle Oil Co. et al No. 1 Glaze, 2 mi. E Hawley, 220 ft. from N and W of Subd. 5, R. Smith Sur. No. 192. Spdg.
E. P. Campbell No. 1 Minter, 4 mi. N Hawley, 220 ft. from N and 150 ft. from E of S½ SE¼ sec. 26, T.&P. Sur., Blk. 15. Drlg. 1,825 ft.
Fain & McGaha Oil Corp. No. 1 Akens, 3 mi. SW Hawley, 220 ft. from N and E of sec. 18, T.&P. Sur., Blk. 16. Drlg. 1,840 ft.
Fain & McGaha Oil Corp. No. 1 Minter, 3 mi. NW Hawley, Lot 12, Robt. Smith Sur. No. 192. Drlg. 1,460 ft.
Fain & McGaha Oil Corp. No. 1 J. H. Wheeler, 3 mi. NW Sandy Ridge pool, sec. 55, O.A.I. Sur. S.D. 2,225 ft.
M. A. Mead No. 1 H. Osment. S.D. 500 ft.
Murray & Harrison et al No. 1 Little, 3½ mi. NE Avoca, 330 ft. from N and W of SW¼ sec. 172, B.B.B.&C. Sur. Drlg. 1,100 ft.
W. H. Peckham No. 1 Davis et al, 3 mi. SW Lueders. Subd. 8, F. M. Smith Sur. No. 3. S.D. 2,084 ft.
Shaheen Oil Co. et al No. 1 Jenson, 2 mi. E Avoca, 330 ft. from N and E lines of S½ of SE¼ sec. 198, B.B.B.&C. Sur. Spdg.
Riddle et al No. 1 J. D. Freeman, 8 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. T.D. S.D. 2,245 ft.
Southern Oil Co. No. 1 B. W. Thane NE cor. County. Andrew Jones Sur. 114. S.D. 1,200 ft.

(Continued on Page 140)

Drilling Contractors

(Continued from Page 101)

1 Tate is below 8,595 feet and is credited with having had several gas showings around 8,000 feet.

Rowan Drilling Co. No. 1 Jameson, on the edge of the Danbury dome, is bottomed in heaving shale at 6,691 feet and may be abandoned. Two strings of tools are running at Amelia for the Humble Oil & Refining Co. while at the Venice dome in Plaquemines Parish, canal is being dredged for No. 4 Manhattan Fruit Co.

Gulf Coast Water Shipments, June, 1937

Company and terminal—	Crude—Coastwise	Crude—Export	Refined—Coastwise	Refined—Export	Total
Sabine District					
Atlantic Pipe Line Co.:					
Atreco	1,440,871	157,572	.....	.....	1,598,443
Continental Oil Co.:					
West Lake	76,084	.....	.....	.....	76,084
Fohs Oil Co.:					
Burtons	227,574	.....	.....	.....	227,574
Gulf Oil Corp.:					
Port Arthur	645,295	.....	3,551,613	132,688	4,329,596
Magnolia Petroleum Co.:					
Beaumont	973,366	286,806	*2,038,810	.....	3,298,982
Lockport	72,272	.....	.....	.....	72,272
Pure Oil Co.:					
Smiths Bluff	82,600	.....	1,068,940	.....	1,151,540
Shell Petroleum Corp.:					
Haymark	227,687	256,338	.....	.....	484,025
Stanolind Crude Purch. Co.:					
Beaumont	326,698	556,082	.....	.....	882,780
Sun Oil Co.:					
Beaumont	1,830,339	160,368	.....	.....	1,990,707
Texas Co.:					
Port Arthur	1,071,826	455,802	3,129,365	993,887	5,650,880
Union Sulphur Co.:					
Lockport	311,183	.....	.....	.....	311,183
Total	7,285,795	1,872,968	9,788,728	1,126,575	20,074,066
Corpus Christi District					
Atlantic Pipe Line Co.:					
Harbor Island	628,938	251,537	.....	.....	880,475
General American Terminal:					
Corpus Christi	139,619	441,965	548,771	251,549	1,381,904
Humble Pipe Line Co.:					
Harbor Island	3,171,665	.....	.....	.....	3,171,665
Texas Co.:					
Corpus Christi	229,743	91,176	.....	.....	320,919
Total	4,169,965	784,678	548,771	251,549	5,754,963
Mississippi District					
Louisiana Crusaders Oil Co.:					
New Orleans	.....	102,543	.....	.....	102,543
Shell Petroleum Corp.:					
Norco	.....	.....	110,498	.....	110,498
Standard Oil Co. of La.:					
Anchorage	101,405	.....	.....	.....	101,405
Baton Rouge	.....	.....	581,463	321,377	902,840
Texas Co.:					
Amesville	154,212	.....	.....	.....	154,212
Pilot Town	.....	82,324	.....	.....	82,324
Total	255,617	184,867	691,961	321,377	1,453,822
Rio Grande Valley District					
Valley Pipe Line Co.:					
Port Isabel	.....	.....	152,848	.....	152,848
Houston-Texas City District					
American Liberty Pipe Line Co.:					
Norsworthy	80,404	121,845	.....	.....	202,249
Atlantic Pipe Line Co.:					
Texas City	309,000	.....	.....	.....	309,000
Eastern States Pet. Corp.:					
Houston	.....	.....	184,000	.....	184,000
General American Terminal:					
Houston	236,135	.....	.....	.....	236,135
Humble Oil & Refining Co.:					
Baytown	353,637	130,232	2,714,274	835,672	4,033,815
Texas City	794,016	.....	.....	.....	794,016
Independent Terminal Co.:					
Texas City	.....	.....	168,800	154,200	323,000
Republic Oil Refining Co.:					
Texas City	.....	.....	387,200	11,800	399,000
Shell Petroleum Corp.:					
Houston	.....	272,338	1,088,754	158,013	1,519,105
Sinclair Refining Co.:					
Houston	943,059	82,830	(†)	(†)	1,025,889
Sun Oil Co.:					
Norsworthy	103,669	.....	.....	.....	103,669
Texas Co.:					
Houston	726,428	.....	.....	.....	726,428
Miscellaneous	306,319	.....	2,875,321	1,407,964	4,589,604
Total	3,852,667	607,245	7,418,349	2,567,649	14,445,910
District Totals					
Sabine	7,285,795	1,872,968	9,788,728	1,126,575	20,074,066
Houston-Texas City	3,852,667	607,245	7,418,349	2,567,649	14,445,910
Corpus Christi	4,169,965	784,678	548,771	251,549	5,754,963
Mississippi	255,617	184,867	691,961	321,377	1,453,822
Rio Grande Valley	.....	.....	152,848	.....	152,848
Total	15,564,044	3,449,758	18,600,657	4,267,150	41,881,609

*Including export shipments. †Included in miscellaneous.

President Farish Announces New Policy in Marketing

NEW YORK, Aug. 23.—W. S. Farish, president of Standard Oil Co. (New Jersey), announced today the adoption of a new policy by the company's domestic marketing affiliates in connection with price adjustments.

On the grounds that "people are interested in and have a right to know what makes the things they buy cost what they do," the Esso Marketers will endeavor, he said, as far as possible to accompany any announcement of an important adjustment in the price of leading products with a statement of the reasons that have made it necessary. Although the company does not operate its own service stations, it was explained, and consequently does not set the retail price, it felt that the forces affecting wholesale prices were a matter of public interest.

Mr. Farish referred to the recent adjustment of gasoline prices on the Atlantic seaboard in which most oil companies posting the change accompanied their action by an explanation of the factors necessitating it.

"If this is an example of a new trend in public relations," he declared, "it is a healthy sign. Honesty in business is not created by public statements—it must spring from within. But it is not enough that industry itself be aware of its high principles, its sense of public trust. It is not sufficient that its products be good and its prices fair.

"For what the man in the street pays for his bread and his shoes, his bus fare and gasoline, his rent, heat and electricity are far more vital to him than the wars, scandals and politics that fill the headlines. People are interested in and have a right to know what makes the things they buy cost what they do. And an honest spirit of public responsibility, as well as in justice to itself, requires that industry play its cards face up.

"Let us admit that this philosophy of frankness in price making is one the significance of which industry as a whole has in the past been slow to appreciate. But many observers believe the time will come when the principle of fair prices openly arrived at will be as generally accepted as the annual stockholders' report. Understanding and good will are the best insurance known against prejudice, fair and open dealing the best guarantees of continued confidence and friendship.

"Petroleum is a business with many ramifications. But by and large it is supply and demand, competition, raw material costs, manufacturing costs, wages and taxes—all the old familiar friends we met in high school economics—that chiefly influence the price of gasoline, as they do that of any other product."

Mr. Farish remarked that in spite of increased labor costs, transportation expenses, materials, taxes, interest rates and other items, the average price of gasoline in the United States had advanced only 11.8 per cent since the low point of the depression in June, 1932, while the price of all commodities had gone up 36.5 per cent.

Rocky Mountain Runs

Daily average production estimates for the week ended August 21:

WYOMING

Salt Creek	15,890
Big Muddy	1,400
Badger Basin	210
Black Mountain	200
Dallas Derby	570
Dutton Creek	60
Elk Basin	480
Frannie	820
Garland	2,490
Grass Creek	3,330
Hamilton dome	1,950
Hidden dome	380
Hudson	300
LaBarge	1,160
Lance Creek	10,720
Lost Soldier	1,570
Medicine Bow	3,040
Midway	20
Oregon Basin	4,450
Osage	830
Pilot Butte	20
Quealy dome	840
Rock River	1,690
South Casper	440
Poison Spider	320
Teapot	20
Wertz	340
Waugh dome	270
Total Wyoming	53,810

MONTANA

Border	90
Cat Creek	620
Cut Bank	10,600
Dry Creek	10
Kevin-Sunburst	5,070
Lake Basin	20
Pondera	1,120
Total Montana	17,530

COLORADO

Florence	140
Fort Collins and Wellington	270
Iles dome	3,130
Moffat	380
Orchard	50
Rangely	80
Tow Creek	170
Price	1,140
Total Colorado	5,360

NEW MEXICO

Cooper	6,360
Eaves	1,150
Eunice	31,940
Hardy	1,380
Hobbs	19,040
Jal	1,320
Langlie	2,150
Lynch	790
Lynn	330
Mattix	1,880
Monument	33,080
North Lynch	60
Penrose	3,240
Rhoades	90
Skelly	1,480
South Eunice	2,030
Vacuum	20
Artesia-Maljamar	6,310
Getty	200
Hogback	200
Rattlesnake	730
Table Mesa	100
Total New Mexico	113,880
Total Rocky Mountain region	190,580

A 6-inch salt water line being laid in the Lorraine, Kansas field. Entire job is 18,000 feet.

This Devil Can't Destroy

DICKEY ACID-PROOF PIPE

Saves 50% On Salt Water Disposal Lines

Solve your salt water disposal problems with Dickey Vitrified Salt-Glazed Clay Pipe and Asphalt Compound Joints. This type of construction costs about 50% less than other types and is impervious to the action of acid, salt or chemicals. It will not corrode or disintegrate and lasts indefinitely.

Dickey Acid-Proof Pipe is always available in 4 to 24-inch sizes. Shipments made promptly from plants at Pittsburg, Kansas and Deepwater, Missouri.

ASK FOR AMAZINGLY LOW PRICES!

W. S. DICKEY CLAY MFG. CO.

KANSAS CITY, MISSOURI

LONGER HYDRAULICS MAKE FRANKS UNIT FASTER

FRANKS HYDRAULICS 2 TO 4 TIMES LONGER THAN OTHER UNITS

Franks' Combination Portable Rotary and Core Drill with Hydraulic feed (Hydraulics 16'—10" stroke) is made in four models for exploration drilling; coring up to 4,000 feet; production drilling up to 3,500 feet; drilling input water wells, etc. Franks' faster, easier operation permitted a 40 per cent per foot reduction over previous costs in Kansas. Write for complete information or a demonstration.

FRANKS MFG. CORP.

WELL SERVICING AND DRILLING UNITS

P. O. Box 137 Whittier Station Tulsa, Okla.

Export Office: 149 Broadway, New York

See Composite Catalog Pages 590 to 596 for complete Franks Lines

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ending Aug. 21 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	80	1,900	97	94	94	Amerada Corp.	788,675	N.P.	50cQ	7-31-37	$2.00	125½	75	80	48½
37	27¼	7,900	30¼	28¼	28½	Atlantic Refining	2,664,000	$25	25cQ	9-15-37	1.25	35⅛	26⅝	28	20½
43⅜	27⅝	2,100	31¾	29½	29½	Barber Co.	387,149	$10	25c.	6-1-37	.50	38½	21	22½	11¾
35¼	23½	7,400	25½	24½	25	Barnsdall Oil Co.	2,247,974	$5	25cQ	8-2-37	.80	28¼	14⅛	14¾	5⅞
20⅞	10	22,700	13⅞	12½	12½	Columbia Gas & Elec.	11,610,036	N.P.	20c	11-16-36	.40	23⅜	14	15¾	3⅜
17⅞	14½	40,300	15⅞	15	15	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	8-14-37	.80	17¼	11½	12¼	6½
49	39¾	8,200	47¾	45⅛	45⅛	Continental Oil of Delaware	4,682,615	$5	50cQ†	9-30-37	1.50	44⅞	28⅛	35	15⅛
17⅝	12½	10,300	15¾	14⅜	14¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	13⅞	6⅜	7	1½
35⅜	25⅛	5,500	32¾	30½	31	Mid-Continent Petroleum	1,855,912	$10	50cSA	6-15-37	1.15	30⅞	17¼	20½	9½
34	23⅞	2,800	29	27	27	Mission Corporation	1,399,345	N.P.	....	.....	.45	29⅞	16¾	17¾	10⅜
41⅜	31¾	7,100	36	34¾	34¾	National Supply of Delaware	382,591	$25	....	5-15-31	....	75½	19⅞	20⅞	9
22⅞	17⅛	16,800	20⅛	18⅜	18⅞	Ohio Oil Co.	6,563,377	N.P.	50cSA	6-15-37	.60	18	12⅛	14¼	9¼
29¾	20¾	1,100	26	25	25	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	2	500	2¼	2	2	Panhandle P. & R.	198,770	N.P.	....	.....	....	4¼	1⅜	1⅞	½
64	49½	14,500	62¼	57⅝	58½	Phillips Petroleum	4,449,052	N.P.	75cQ†	6-1-37	2.50	52⅜	38⅛	40	13¾
29⅞	24¼	3,500	26½	24¼	25¼	Plymouth Oil Co.	1,050,000	$5	35cQ†	3-31-37	.90	27¾	11⅞	13	6½
24⅜	16⅝	40,400	21¼	19¾	20	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	....	24⅞	16	17	5⅞
54⅛	36⅝	1,700	40¾	38	38	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	9-15-37	1.00	44	30½	36⅞	20¾
34⅜	25⅛	20,300	27⅛	25⅛	25½	Shell Union Oil	13,070,625	N.P.	50c	7-15-37	.25	28¼	14¾	16½	5½
105⅝	102	No sales	..	..	..	Shell Union Oil 5½% pfd.	343,500	$100	26⅛c	12-15-36	28.87½	127½	102	111	63⅛
4¼	3¼	400	3⅜	3¼	3¼	Simms Petroleum	461,698	$10	50c liq.	8-3-37	2.25 liq.	6¾	3½	18¾	4¾
60⅝	42	1,400	57¾	52	52¼	Skelly Oil	1,006,348	$15	50c	9-30-37	....	47⅜	19½	20½	6½
23¼	16¼	92,200	23¼	20½	20⅝	Socony-Vacuum	31,151,071	$15	25cSA	7-15-37	.70	17½	12½	15⅜	10⅝
50	39⅝	7,800	45⅞	43⅜	43½	Standard Oil of California	13,014,754	N.P.	45cQ†	9-15-37	1.20	47⅝	35	41⅛	27¾
50	40½	10,500	47	45¾	46	Standard Oil (Indiana)	15,196,241	$25	50cQ†	9-15-37	2.40	48½	32¾	33⅜	23
36½	30⅝	200	34½	34½	34½	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
76	63⅛	11,700	69⅞	66⅜	66⅝	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	6-15-37	2.00	70⅜	51⅛	52⅜	35¾
77½	65	1,700	72¼	68	68	Sun Oil	2,156,825	N.P.	25cQ	9-15-37	$1 & 6% Sk.	91	70	77	60½
65⅛	50⅜	24,500	64¾	59¾	61⅜	Texas Corp.	10,896,858	$25	50cQ	7-1-37	1.50	55¼	28⅞	30¼	16½
9⅝	6	5,500	7⅜	7	7	Texas Gulf Producing Co.	888,129	N.P.	5c	12-15-36	.05	8⅞	4⅜	4¾	2½
16⅝	11¾	4,200	13¾	12⅞	13	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-37	.25	15¼	7½	9¼	3¼
21⅝	15⅜	15,100	21	19¾	20	Tide Water Associated	6,288,512	N.P.	35cQ†	9-1-37	.70	21⅜	14¾	15⅞	7⅝
28¼	22⅞	3,900	25¼	24¼	25	Union Oil of California	4,386,070	$25	30cQ	8-10-37	1.00	28½	20¾	24	14¾
31½	24¾	200	27	27	27	Union Tank Car Co.	1,200,000	N.P.	40cQ	9-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	4	4,500	4½	4	4	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras.

New York Curb Exchange

1937 High	1937 Low	Week ending Aug. 21 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21¾	16	2,300	18⅝	17¾	17⅞	Bridgeport Machine Co.	260,000	N.P.	$1	12-21-36	$1.00	21	13¼	14⅛	3¾
51½	45¾	50	49	49	49	Buckeye Pipe Line Co.	200,000	$50	$1Q	9-15-37	3.25	50	39¾	42½	30½
2¾	1⅝	1,700	1¾	1⅝	1⅝	Carib Syndicate	799,020	25c	....	.....	....	4⅞	1⅞	4¼	1⅝
123	110¼	200	115½	115	115	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-30-37	7.00	124¾	105	157	115
5⅜	2⅝	19,600	3⅛	3	3	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅜	3	3¼	⅝
5½	4⅛	3,200	4¾	4⅜	4½	Cosden Petroleum	399,687	$1	....	.....	....	4½	1½	1½	¼
38¾	28½	2,700	38⅜	36½	37¼	Creole Petroleum	6,974,356	$5	50cSA†	6-10-37	.50	39	19⅞	23¾	10
18⅝	11½	800	12	11½	11½	Darby Petroleum	351,390	$5	25cSA	7-15-37	.50	18⅛	9	8⅞	4
8⅜	5¼	1,400	7¾	7⅛	7½	Derby Oil & Refining	263,162	N.P.	....	.....	....	6¾	1⅞	2	⅝
47½	30	200	31½	30	30	Eureka Pipe Line	50,000	$50	$1Q	8-2-37	4.00	47½	38½	38	33¼
63½	50	3,400	59⅞	56	56½	Gulf Oil Corp.	9,076,202	$25	25cQ	7-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	72	1,800	84¾	81½	82	Humble Oil & Refining	8,923,935	N.P.	37½cQ	7-1-37	1.50	80	57	64	44
24¼	20	1,300	21	20⅝	20⅝	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	6-1-37	1.25	24½	19¾	22½	15⅝
15	7¾	400	9¼	9⅛	9¼	Indiana Pipe Line	300,000	$10	30cSA	5-15-37	.80	9¾	5½	6⅛	3⅝
39½	33½	2,300	35¼	34¼	34½	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-37	2.50	39⅝	32⅝	39¾	28
15¼	11⅜	3,300	13¼	13	13	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	3-15-37	.50	15⅜	9⅞	11⅜	4⅜
34	16⅛	4,500	28¼	26⅛	26¾	Lion Oil Refining	270,000	N.P.	50cQ†	7-20-37	.75	17¾	7⅜	8⅛	3½
14¼	9⅞	3,200	10¾	10⅜	10¾	Lone Star Gas	5,382,723	N.P.	20c	4-20-37	.60	14¼	9⅞	10⅞	4½
14⅝	9½	500	9⅝	9½	9½	Midwest Oil Co.	998,444	$10	50c	6-15-37	....	..	..	..	..
7⅞	5⅜	500	6⅜	6	6⅛	Mountain Producers	1,682,182	$10	30cSA	6-15-37	.60	8⅜	5	5¾	4⅛
19½	14½	2,200	15¼	15	15	National Fuel Gas	3,810,183	N.P.	25cQ	7-15-37	1.00	23	17⅜	20	11¾
12½	10	500	10½	10⅛	10¼	National Transit	509,000	$12.50	45cSA	6-15-37	.75	15¾	9¼	10⅝	6¾
6⅛	4¾	No sales	..	..	..	New Bradford Oil	1,445,202	$5	15cSA	4-15-37	.10	4⅝	2⅞	3¼	2
5	2¼	1,200	2¾	2⅜	2⅜	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4⅜	No sales	..	..	..	New York Transit	100,000	$5	15cSA	10-15-36	.35	6¼	4¼	4⅞	3
12¾	7½	100	8¾	8¾	8¾	Northern Pipe Line	120,000	$10	40c	6-1-37	.40	9¾	4⅞	8	5¼
9⅝	5½	1,700	8⅛	7	7¼	Pantepec Oil	1,608,700	N.P.	....	... ..	....	10⅛	3¼	4⅜	1¼
13¾	5	1,100	6⅜	6	6⅛	Root Petroleum Co.	336,045	$1	25c	11-2-36	.50	19¼	4½	5	1½
6½	4	100	5¾	5¾	5¾	Ryan Consolidated	296,931	N.P.	....	.....	....	4¾	1⅞	2½	⅝
56	42	3,900	56	52	52	South Penn Oil	1,000,000	$25	75cQ†	6-30-37	2.60	44	32½	34½	21⅝
7¼	5	No sales	..	..	..	Southern Pipe Line	100,000	$10	25cSA	9-1-37	.25	7⅞	3¼	5	3⅞
42	27	No sales	..	..	..	South West Penna. Pipe Lines	35,000	$50	50cQ	4-1-37	13.00	60	44	56	44¼
21⅛	19	3,300	21⅛	20	21⅛	Standard Oil of Kentucky	2,604,790	$10	40cQ†	9-15-37	1.35	23⅜	17⅛	24	18
13¾	9⅞	200	10¼	10⅛	10⅛	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7¾
45	33	700	38½	36½	36½	Standard Oil of Ohio	753,740	$25	25cQ	9-15-37	2.00	40	21¾	23⅝	11½
4⅞	3¾	7,600	4½	4	4¼	Sunray Oil	1,910,119	$1	10c	8-20-37	.10	5	2⅝	2⅞	⅞
7⅝	5	200	5⅝	5½	5⅝	Texon Oil & Land	336,028	$2	15cQ	6-30-37	.60	9¾	5⅜	6⅞	5

*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

PERSONAL

S. F. SHAW, consulting engineer of the Westgate Oil Company, has returned to Oklahoma City, Okla., from Corpus Christi, Tex., where he conducted gas-lift tests in wells of the Saxet Heights field.

FRANK S. HORNE, for 10 years superintendent of the Wichita, Kans., refinery of the Barnsdall Refining Company, will be transferred to the Barnsdall, Okla., plant September 1, filling a similar position there. VERNON H. OAKLEY, superintendent of the Barnsdall plant, will take Mr. Horne's place in Wichita.

L. T. BARROW, manager of the production department, and J. E. BERMINGHAM, head of the producing division of the Texas Company, with headquarters in Houston, Tex., accompanied R. OGARRIO, vice president, of New York, on an extended tour through the Southwest Texas district the past week.

W. E. RAMSEY, of the Ramsey Petroleum Company, which operated with success in the Long Beach field of California several years ago, has opened an office in Los Angeles to direct the drilling of a new well in the northwest end of the El Segundo field.

E. B. SWANSON, Washington, D. C., member of the Petroleum Conservation Division, Department of the Interior, is making a tour of oil-producing states of the Southwest. Mr. Swanson, who is an expert at bridge and has won many trophies, was elected recently a director of the American Bridge Association.

ANDREW M. ROWLEY, Tulsa, oil writer and editor and author of the book "Oil Royalties Worth Much More Under New Methods," has been made oil editor of the Tulsa Tribune. Before his entrance into the field of oil and gas Mr. Rowley held editorial positions on Pittsburgh, Pa., newspapers and the Associated Press.

O. W. CRICK, credit manager and assistant sales manager of Danciger Oil & Refineries, Inc., Tulsa, accompanied by MRS. CRICK and their son, is on vacation in Wisconsin. They will return home late next week.

E. Z. HANNAN, scout for the Sinclair Prairie Oil Company, with headquarters in Houston, Tex., has been promoted to assistant land man in the Gulf Coast division. His position was taken over by D. W. CANFIELD, of the scouting department.

A. G. LEVY, chief engineer for the Texas Company in the Louisiana division, with headquarters in Shreveport, La., acted as chairman at a meeting of South Louisiana operators in Lake Charles, La., last week, preparatory to making recommendations to the Louisiana Department of Conservation. Other engineers attending were: W. A. ALEXANDER, Shell Petroleum Corporation; T. H. ANDRES, Stanolind Oil & Gas Company; W. E. HUBBARD, Humble Oil & Refining Company; E. P. HUBBARD,, Gulf Oil Corporation; DR. STANLEY GILL, Fohs Oil Company; GEORGE NYE, Tide Water Oil Company; CHASE SUTTON, Pure Oil Company, and E. V. HEWITT, Pan American Production Company.

E. B. WALL has been placed in charge of all field operations for the W. G. Ray Drilling Company, Shreveport, La.

J. E. ELLIOTT, chief power engineer for the Southwestern Gas & Electric Company of Shreveport, La., is on vacation in California.

FRANK C. ROPER and JOHN D. TODD, independent geologists, formerly in Lafayette, La., have opened offices at 908 Sterling Building, Houston, Tex.

F. R. BROINARD, JR., petroleum engineer for the Shell Petroleum Corporation in the East Texas field, has been transferred to the company's office in Houston.

H. L. BURCHFIELD and T. J. GALBRAITH, geologists for the California Company, San Francisco, are in Florida looking over oil developments in that state.

DR. GUSTAV EGLOFF, research director of the Universal Oil Products Company, Chicago, has been made a director of the International Petroleum Exposition.

F. R. PETERSON, Corpus Christi, Tex., has been named vice president and general manager of the Buckingham Oil Company and Eleanor Oil Company. He replaces C. V. BOB, who resigned.

RALPH WILLS, formerly general superintendent for the Rocky Mountain Oil Company, Longview, Tex., has been engaged by the Anglo-Canadian Development Company, Ltd., of Calgary, Alberta, as superintendent of operations.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The total exports of mineral oils in July, 1912, was 181,267,136 gallons, valued at $11,631,166, or an average of about 6.42 cents per gallon. Crude oil exported amounted to 18,449,921 gallons valued at $682,070, or $1.55 per barrel.

The Texas Company's annual statement shows assets of $51,952,235.17. Its plant account totals $27,729,114.81.

D. F. (Denny) McMahon, of Houston, Tex., is making his first visit to the northern Mid-Continent fields.

The C. B. Shaffer interests are drilling the deepest well in Oklahoma. It has passed the 3,600-foot mark.

20 YEARS AGO

Hugh P. Brawley, formerly in charge of the Kansas Natural Gas Company's land department, dies at his home in Meadville, Pa. He had retired from business because of a nervous breakdown.

Barney Lowentritt, 79 years old, once a prominent member of the Oil Exchange in Oil City, Pa., dies in Cleveland, Ohio. He had been crushed in an elevator in a hotel in that city.

Kansas, Oklahoma and North Texas crude is raised to $2 per barrel, the highest Mid-Continent crude price on record.

10 YEARS AGO

Crude oil production in the United States has been steadily declining since August 1 when it reached an all-time high of 2,587,105 barrels a day.

Patrick Louis McGreal, for 13 years in charge of The Oil and Gas Journal's Gulf Coast bureau, dies in Houston.

The Seminole field in Oklahoma is produced wide open for four days and fails to make its prorated allowable of 450,000 barrels per day.

JOSEPH PURZER, geologist for the Phillips Petroleum Company in Shreveport, La., is on vacation in Mexico.

J. DAVID HEDLEY, district geologist for the Barnsdall Oil Company in the Gulf Coast area, is spending two weeks in Ruidosa, N. Mex.

W. J. SHERMAN, chief clerk of the production department for the Texas Company in Houston, Tex., has returned to his desk after a vacation trip to Mexico.

CLARENCE O. DAY, district land department manager for Phillips Petroleum Company, Shreveport, La., division, has returned from a vacation trip to Nebraska.

PERCY MARTIN, production superintendent in the San Joaquin Valley for the Texas Company, is spending a vacation on his power boat in northern California waters, accompanied by his family.

H. D. THOMPSON has resigned as assistant secretary of the Shamrock Oil & Gas Corporation in Amarillo, Tex., to become business manager in Los Angeles, Calif., of the Parkhill-Wade Engineering Company.

J. W. WOOD, secretary-treasurer of the Wood-Callahan Oil Company, Ltd., Long Beach., Calif., has gone to Worland, Wyo., where he met R. H. HUME, production superintendent and manager of operations for Wood-Callahan on its test of the Paint Rock structure in Washakie County, 25 miles north of Worland. Mr. Wood plans to be on location while the well is drilling in and testing the principal objective, the Madison lime.

PARAGRAPHS

MR. and MRS. OTTO KOCH, of Bradford, Pa., celebrated their fiftieth wedding anniversary at their home on Sunday, August 22. Mr. Koch is president of the Kendall Refining Company. A feature of the golden wedding observance was the announcement of the engagement of their son, OTTO KOCH, JR., and MISS NOLA MEEK, of St. Petersburg, Fla.

OLIVIER LESOURD, editor of "L'Industrie du Petrole" and "Le Guide du Petrole" of Paris, France, was a visitor in New York oil offices last week. He came to this country to study American oil men and their methods of operation. He is planning to come again in May, 1938, to attend the International Petroleum Exposition in Tulsa and to make an extended tour of Mid-Continent producing fields.

W. H. McFADDEN, president of the Southland Royalty Company, Ponca City, Okla., was in Oklahoma City last week in conference with GOV. E. W. MARLAND, close friend and business associate. Mr. McFadden was a vice president of the old Marland Oil Company before it was merged with the Continental Oil Company. He planned to go to Colorado Springs, Colo., where his company has a branch office, before returning to his home.

DR. M. M. LEIGHTON, head of the Illinois Geological Survey for the past 14 years and an authority on petroleum possibilities of the state coal basin, was the principal speaker at the oil communities celebration held in Olney, Ill., last Friday evening. Guests were taken on a tour of inspection of the nearby oil fields.

D. E. BUCHANAN, president of Hanlon-Buchanan, Inc., Tulsa, returned last week from Europe, where he and E. I. HANLON, chairman of the board, made an extended tour after attending the World Petroleum Congress in Paris last June. The two had an interview with PREMIER MUSSOLINI in Rome. "The most dynamic man I ever met," declared Mr. Buchanan. He and Mr. Hanlon also had an audience with POPE PIUS XI. The two men visited oil refining centers of Europe, and Mr. Buchanan spent a night in Loch Lomond, Scotland, home of the clan of which his ancestors were members. Mr. Hanlon will sail from Southampton, England, September 8.

C. C. TOOMEY, chairman of the board of the Midco Oil Corporation, Tulsa, with MRS. TOOMEY and their daughters, the MISSES DOROTHEA and PEGGY TOOMEY, has returned from a vacation tour which included California, Oregon and Washington.

W. K. WHITEFORD, vice president and director of the British American Oil Producing Company, and MRS. WHITEFORD, Tulsa, are back from California, where they spent a month in Los Angeles, Beverly Hills, Palo Alto and La Jolla. Their two sons, BILL and PETER, who went to California last winter, will return home next month.

E. B. WHARTON, petroleum engineer on the staff of the Texas Railway Commission and for the last year stationed in the Texas development of the Rodessa field, will be transferred September 1 to the district office of the commission in Marshall. He will be replaced by ROBERT E. ADAIR, now petroleum engineer for the commission in Kilgore.

DON CHAPEL, formerly with the Shell Petroleum Corporation in Ardmore, Okla., has joined the geological staff of the Transwestern Oil Company in Oklahoma City.

J. B. HYNAL, petroleum safety director for the U. S. Bureau of Mines in McAlester, Okla., is conducting classes in safety and first-aid work for oil field workers in El Dorado, Ark.

R. J. PAGIN, assistant comptroller of the Richfield Oil Company, and MORGAN W. LOWERY, secretary of the same company, have tendered their resignations. Their plans for the future have not been announced.

R. P. RUSSELL has been appointed executive vice president of the Standard Oil Development Company, a subsidiary of the Standard Oil Company of New Jersey. He will assume general executive responsibility under F. A. HOWARD, president.

C. S. PENFIELD has returned from a year's stay in Sarawak and Brunei in British Borneo, where he was in charge of drilling operations for the Shell interests. He is filling his former position as drilling superintendent in the Los Angeles Basin division for the Shell Oil Company of California.

RALPH B. LLOYD, president of the Lloyd Corporation, owner of the prolific Lloyd property in the Ventura Avenue field and former president of the Oil Producers Agency of California, has been named chairman of the Committee of 15, designated to recommend a site for the Los Angeles Annual Trade Exposition and Cabrillo Celebration.

Union's Chief Geologist

Earl B. Noble, recently advanced to chief geologist of the Union Oil Company of California, graduated in metallurgy from the Sheffield Scientific School, Yale, in 1916. He then entered the service of the Chile Exploration Company in South America and later was employed in mining and metallurgical work for the American Smelting and Refining Company in Mexico. He returned from Mexico in 1919 and after postgraduate work in geology at the University of California put in a year working on drilling wells in the Huntington Beach and Long Beach fields for experience. He then joined the California State Mining Bureau, Department of Oil and Gas, and spent several years in the Taft office of the bureau in the Midway-Sunset field. Mr. Noble remained with the State Mining Bureau until July, 1923, when he joined the Union Oil Company as a scout for the San Joaquin Valley division. In June, 1924, he was made division geologist for the San Joaquin division and in February, 1929, he was appointed assistant geologist, with headquarters in the main office in Los Angeles. He was advanced to assistant manager of exploration and then to chief geologist. Mr. Noble was president of the Pacific Section of the American Association of Petroleum Geologists in 1929.

EARL B. NOBLE

RAY STEVENS, scout for the Shell Petroleum Corporation in Houston, Tex., has been transferred to Mississippi. His headquarters will be in Halletsville.

F. R. SCHMIEDER, production manager in the Los Angeles Basin division for the Shell Oil Company, has left his office at Long Beach, Calif., for a vacation in Alaska.

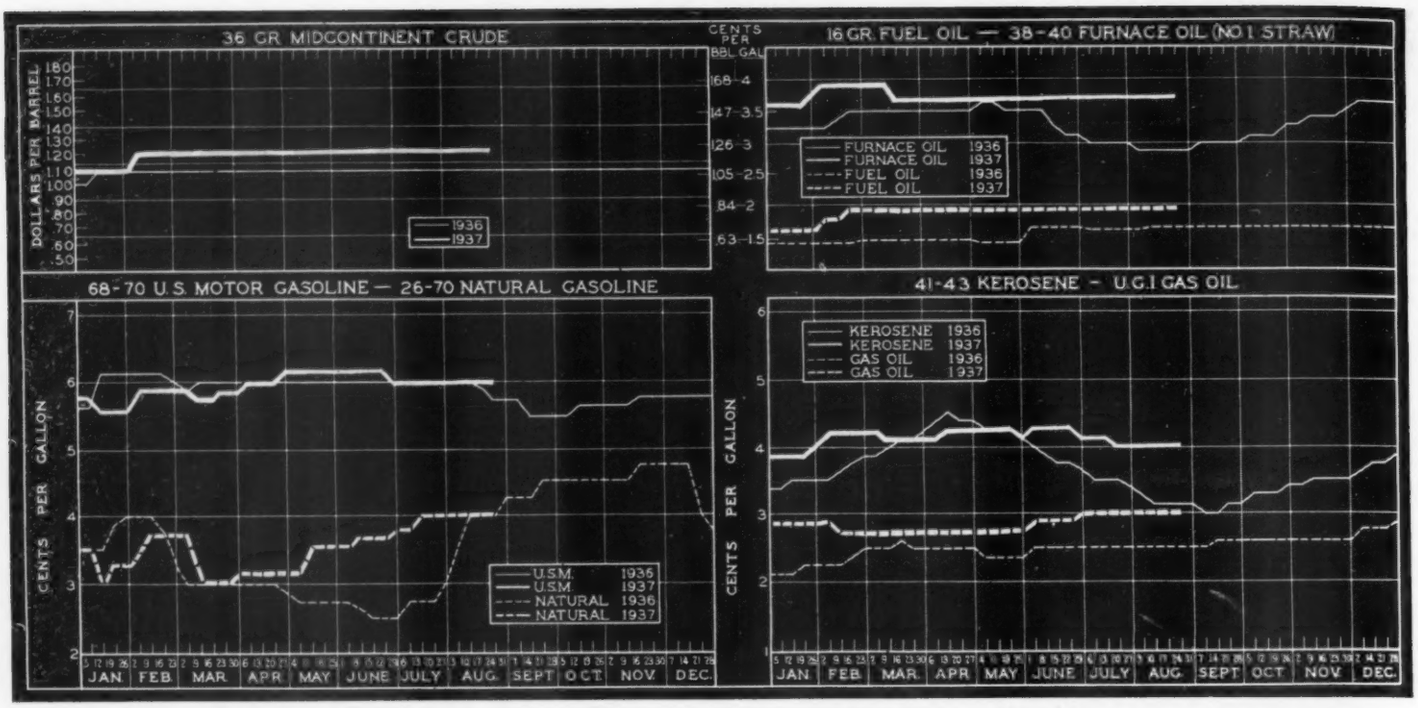
A. H. ROWAN, of the Rowan Drilling Company, Fort Worth, Tex., is looking after the company's Houston office while his brother, CHARLIE ROWAN, is on vacation in California.

L. V. STANFORD, vice president of the Sinclair Refining Company, in charge of export business, sailed from New York August 18 for Southampton and Havre. Mr. Stanford plans to spend several weeks abroad.

WALTER L. McCLANAHAN, operator of Mount Pleasant, Mich., and discoverer of the Arkansas extension of the Rodessa field, flew down in his private plane last week to witness testing of some of his wells in that vicinity.

F. C. HALL, California oil producer, has entered his Lockheed Twelve monoplane in the Bendix air race from Los Angeles, Calif., to Cleveland, Ohio, to be held September 3. Mr. Hall will accompany MILO BURCHAM, the pilot.

HERBERT F. MILLER, director and manager of the marketing department of the Carter Oil Company, Tulsa, accompanied by MRS. MILLER and their three sons, is acquiring a tan on a ranch near Gold Hill, Colo. The trip was made by motor.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline Easier in Group 3 Area, But Labor Day Buying May Tighten It

By T. F. SMILEY

Indecision characterized the gasoline market in the Group 3 area this week. Although a feeling prevailed that the late fall business would be moderately better than that of 1936, there was no blinking the fact that the market tone was less sturdy than it was a week ago. Nothing that could be classified as distress material was in sight, but more gasoline was available. Some, evidently looking for quick movement, was reported sold at concessions, but there was not enough of it to affect the general price structure. In fact, various independent refiners who for weeks have been unable to keep abreast of their orders said they were still trailing and trying to buy from other refiners to placate customers. Also they said they were paying the regular prices for what they got.

May Miss Profits

While most observers were disposed to regard the easier market as a passing condition, some expressed belief that areas which hitherto had not been visibly touched by the country's overheavy total stocks of gasoline were now beginning to feel their unfavorable influence. These latter asserted that unless the rising course of crude stocks is checked and gasoline inventories are reduced more sharply refiners, who have failed this summer to reap the profits which should attend the biggest motor fuel gallonage in the industry's history, will end the season without recovering any part of their loss.

It was pointed out in this connection, as particularly affecting the interests of Mid-Continent refiners, that gasoline stocks in Oklahoma, Kansas and Missouri are 18 per cent higher than they were at this time last year. Many in the trade who viewed motor fuel inventories with complacency last spring manifest uneasiness about them now.

Jobber buying is expected to be generous next week, in preparation for Labor Day, which will provide a double holiday for virtually everybody and a triple holiday for thousands. With favorable motoring weather there should be tremendous consumption of gasoline. Many in the trade look to this holiday business to remove whatever signs of softness may have been observable this week.

Less than a dozen refineries were operating in the East Texas area. A large part of the output was being sold on state tenders for consumption in Texas. Virtually all tankcar shipments were to the Gulf. This field, which once presented a picture of riotous overproduction, no longer constitutes the semblance of a threat. The Rodessa field too, which dislocated the gasoline market for a time, is causing little worry at this juncture, although it has potentialities for trouble no longer possessed by East Texas. The growing disposition of the East Texas refiner to sell his gasoline on state tenders is not difficult to understand. He runs it into trucks from his own loading-dock and gets cash on the barrel-head. At the same time he escapes complications which often accompany federal tenders.

Kerosene, especially the 41-43 grade, was in active demand, largely as a result of its use in making tractor fuels, which with the harvest season close at hand, are entering one of their periods of lively consumption. Nevertheless, some odd cars of kerosene, requiring prompt movement, were reported sold at minor concessions.

Naturals Ready for Fall Business

Natural gasoline is in excellent strategic position for the forthcoming fall and winter business. Steady demand has been taking care of current production, with the result that no unwieldy field stocks have accumulated. Even this early some of the large manufacturers are evincing no inclination to take on new business. Doing it, they say, might force them to be buyers themselves later.

Heating oils were closely held, with tightening of quotations, though no changes of consequence. Neutrals and bright stocks were slow. Wax was not quite so strong as last week.

Refined Oil Market Barometer

Signs of softness in the tankcar gasoline market in Mid-Continent and Middle West areas are attributed largely to mounting crude inventories and failure of gasoline stocks to drop as rapidly as expected. Retail markets on the East Coast unsettled by price wars. Consumption continues to break records. Outlook for kerosene and fuel oil good.

MID-CONTINENT. Gasoline easier. Naturals steady. Heating oils firm. Lubricants dull.

EAST COAST. Tankcar gasoline firm, but retail markets disturbed by price-cutting.

GULF COAST. Gasoline firm. Kerosene strong. Heating oils up.

CALIFORNIA. Local markets good, but case goods accumulating owing to Sino-Japanese war.

PENNSYLVANIA. Gasoline tight. Bright stocks in slump. Kerosene strong.

CHICAGO. Gasoline firm. Heating oils steady. Tractor fuels and kerosene improving.

Price Disturbances Threatening Retail Motor Fuel Market on East Coast

By H. STANLEY NORMAN

NEW YORK, Aug. 24.—Retail price disturbances in New York, New Jersey and Pennsylvania last week threatened to make a deep cut in the end of summer motor fuel business so far as dealers are concerned.

While tankcar and tank-wagon prices remained unchanged, it was known that suppliers are protecting their dealers in some of the more seriously affected areas. Several retail outlets in Manhattan, Queens, the Bronx and in Brooklyn are now posting 98 cents for 6 gallons of regular gasoline, including the total of 5 cents per gallon tax.

The new Pennsylvania state law prohibiting retail gasoline dealers from making private and secret discounts backfired last week and open warfare was reported in several important marketing centers. Obeying the letter of the new state law, Pennsylvania retail gasoline dealers flaunted discount signs in bold lettering and several successive cuts followed in Pittsburgh and surrounding territory.

The retail price disturbance in New York is the outgrowth of unsettled conditions existing for several weeks in the boroughs of Queens and Brooklyn and with similar conditions across the Hudson River in northern New Jersey. Competition for dealer outlets is said in the trade to be more vigorous at present than at any time in the past five years. With the volume of motor fuel touching all-time peaks, it follows that many companies are resorting to practices leading to instability to maintain their dealer outlets at maximum numbers.

Since there has been no change in the quoted tank-wagon and tankcar prices during the past few weeks it is evident that discounts are being extended to dealers in the price-cutting areas. At the current level of 6 gallons for 98 cents prevailing in some parts of metropolitan New York and in nearby areas of northern New Jersey, less than a cent per gallon margin remains for the price warring dealers, if they are compelled to pay the full tank-wagon posting for undivided accounts. Although most all outlets are serving record gallonage demand, the margin between 6 gallons for 98 cents and the posted tank-wagon prices in this area is insufficient to operate even the small stations.

Tightness of the tank-wagon and tankcar prices along the Atlantic seaboard, however, attests to the sound basic conditions and is evidence that very little material is available on the Gulf Coast at less than current quotation of 6½ cents per gallon for 65 octane motor fuel.

Further evidence of sound basic conditions on the Gulf Coast is the fact that several purchasers for European accounts have attempted during the past two weeks to purchase 64-66 octane 375 endpoint gasoline for less than 6⅜ cents per gallon without success. The last cargoes of gasoline sold on the Gulf Coast for export were moved at 6⅜ cents per gallon and refiners are unwilling to shade this price. Meanwhile, contract customers along the Atlantic Coast continue to enter shipping instructions for record volumes leaving the coastal refining district in healthy condition.

One of the contributing factors to present unsettlement in parts of the north Atlantic marketing territory is softening of the tanker charter market. It is currently reported that four or five boats are at anchor in Gulf Coast ports seeking to charter for coastwise trips. Existence of idle tankers on the coast is now, as in the past, a barometer to the charter market. Charter rates have skidded for an absolute peak of 65 cents per barrel for coastwise movement in the latter part of May to 35 cents or less at the present time. Fluctuation of the tanker charter rate has again opened marketing doors to traders dependent on their ability to undersell the basic quotations. These factors, which were pretty well restricted in their operations during a part of the early summer, are again exerting their influence and are handling sufficient volume of business to keep the general market around readily accessable ports in confusion.

It is thought in some quarters, however, that the present disturbance in parts of the eastern seaboard is representative of accumulated gasoline stocks from small suppliers who were restricted in their operations during the early summer era of exceptionally high tanker rates. Market observers express the belief that conditions will again adjust themselves to normal when the excess accumulation is absorbed and when available supplies are placed in the market at infrequent intervals and in small quantities.

Kerosene on the Gulf Coast and eastern seaboard remained firm and the volume of material pumped into consuming channels continues high. Slight improvement was reported in parts of the Pennsylvania refining district where plant owners raised quotations an eighth of a cent to 5 cents per gallon for 45 w.w. grade. On the Gulf Coast, 44 w.w. kerosene is generally quoted at 5⅛ to 5¼ cents per gallon and the tankcar price in New York is unchanged at about 6.3 cents per gallon. Pennsylvania refiners have been shipping considerable kerosene into the northern and eastern consuming areas via the New York ship channel for the past several weeks. However, the market appears to be on firm foundation and movement of material from Pennsylvania appears to be more closely linked with inability of East Coast marketers to supply the demand than with the shade of differential between the prices at the two sources.

While there has been no major movement of gasoline reported for the past two or three weeks in export channels, the Gulf Coast market is somewhat below Rumanian quotations. The interest of exporters has been growing, but their offers, somewhat below the current quotation of 6⅜ cents per gallon, have failed to bring out any material. Light gasoline, corresponding to the 64-66 grade on the Gulf Coast, is currently quoted in Rumania at about 7⅜ cents per gallon. The tanker rate for movement from the Gulf Coast to Europe has been reduced according to coastwise charters leaving the Gulf gasoline price somewhat lower than Rumania's quotations. If the Rumanian market remains firm, indications are that European buyers will be eventually forced into the Gulf Coast for their supplies.

With New Yorkers sweltering under some of the summer's hottest weather, fuel oil interest was at a low ebb. However, oil companies are continuing with their preparations to serve the heaviest demand in history and prices are ruling firm. Shell Union Oil Co. dropped No. 2 and No. 4 fuel oil prices in Philadelphia a quarter of a cent per gallon to 5 cents in line with the quotations of other large refiners. Elsewhere, however, the fuel oil prices were unchanged. In New York, all large sellers are settled on 5¼ cents and this price prevails in New Jersey and in Maryland. Philadelphia

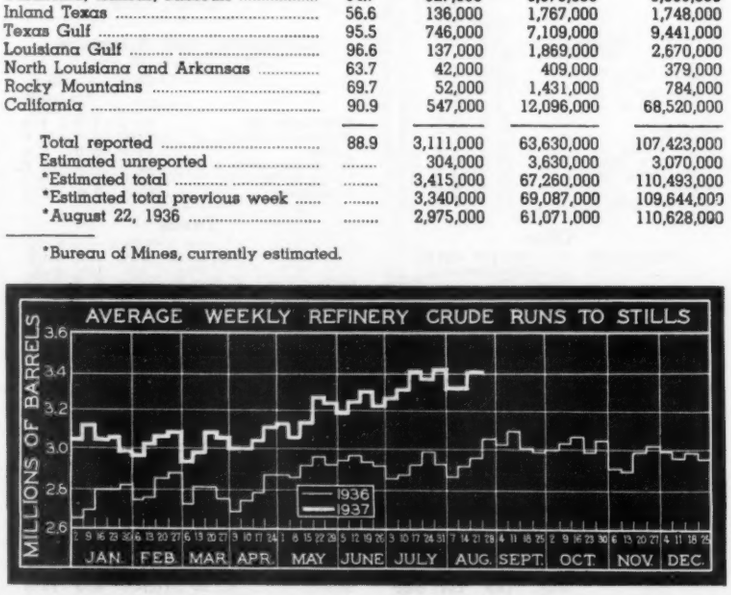
(Continued on Page 138)

A. P. I. Weekly Refinery Statistics

Week Ending August 21, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	579,000	18,353,000	12,903,000
Appalachian	88.4	103,000	2,626,000	847,000
Indiana, Illinois, Kentucky	92.4	442,000	11,297,000	6,741,000
Oklahoma, Kansas, Missouri	84.7	327,000	6,673,000	3,390,000
Inland Texas	56.6	136,000	1,767,000	1,748,000
Texas Gulf	95.5	746,000	7,109,000	9,441,000
Louisiana Gulf	96.6	137,000	1,869,000	2,670,000
North Louisiana and Arkansas	63.7	42,000	409,000	379,000
Rocky Mountains	69.7	52,000	1,431,000	784,000
California	90.9	547,000	12,096,000	68,520,000
Total reported	88.9	3,111,000	63,630,000	107,423,000
Estimated unreported	.....	304,000	3,630,000	3,070,000
*Estimated total	.....	3,415,000	67,260,000	110,493,000
*Estimated total previous week	.....	3,340,000	69,087,000	109,644,000
*August 22, 1936	.....	2,975,000	61,071,000	110,628,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending August 7, 1937	307,922,000 barrels
Week ending July 31, 1937	308,250,000 barrels
Week ending August 8, 1936	305,194,000 barrels

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of August 24, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	15.5	13.5	4.0	10.1
Decatur	15.5	14.0	4.0	10.1
Joliet	15.5	14.0	4.0	10.1
Peoria	15.5	14.0	4.0	10.1
Quincy	15.3	13.8	4.0	9.9
Davenport, Ia.	15.5	14.0	4.0	‡13.1
Des Moines	15.3	13.8	4.0	‡12.9
Mason City	15.7	14.2	4.0	‡13.3
Sioux City	15.5	14.0	4.0	‡13.1
Duluth, Minn.	17.3	15.8	5.0	10.9
Mankato	16.9	15.4	5.0	10.5
Twin Cities	16.9	15.4	5.0	10.5
Lacrosse, Wis.	16.9	15.4	5.0	10.5
Green Bay	17.2	15.7	5.0	10.8
Milwaukee	16.8	15.3	5.0	10.4
Detroit, Mich.	15.4	13.9	4.0	9.8
Grand Rapids	16.5	15.0	4.0	10.9
Saginaw	16.3	14.8	4.0	8.5
Evansville, Ind.	17.0	15.5	5.0	†10.6
Indianapolis	17.2	15.7	5.0	†9.6
South Bend	17.4	15.9	5.0	†9.6
Fargo, N. Dak.	16.9	15.4	4.0	11.5
Minot	18.1	16.6	4.0	12.7
Huron, S. Dak.	17.3	15.8	5.0	10.9
Kans. City, Mo.*	14.9	13.4	4.0	8.0
St. Louis*	15.2	13.7	4.0	9.8
St. Joseph*	14.9	13.4	4.0	8.5
Wichita, Kans.	14.4	12.9	4.0	8.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Iowa kerosene prices include 3-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13.5	12.0	4.0	9.0
Newark	13.5	12.0	4.0	9.0
Annapolis, Md.	15.6	14.1	5.0	9.5
Baltimore	15.0	13.5	5.0	9.0
Cumberland	17.4	14.9	5.0	10.0
Wash'g'n, D. C.*	12.5	11.0	3.0	9.5
Danville, Va.	18.2	15.7	6.0	12.9
Norfolk	17.0	14.5	6.0	11.5
Petersburg	17.3	14.8	6.0	11.7
Richmond	17.3	14.8	6.0	11.7
Roanoke	18.5	16.0	6.0	12.9
Charles'n, W. V.	17.8	15.3	6.0	12.6
Parkersburg	17.1	14.6	6.0	11.2
Wheeling	17.0	15.5	6.0	12.2
Charlotte, N. C.	19.4	16.9	7.0	12.6
Hickory	19.9	17.4	7.0	13.0
Mt. Airy	19.7	17.2	7.0	12.8
Raleigh	19.0	16.5	7.0	12.1
Salisbury	19.5	17.0	7.0	12.7
Charleston, S. C.	18.0	15.5	7.0	11.1
Columbia	19.0	16.5	7.0	12.1
Spartanburg	19.7	17.2	7.0	12.9

*Standard of N. J. has discontinued posting service-station prices at all above points except at Washington and Baltimore where station prices of 16.0 and 18.5 cents, respectively, are in effect.

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	22.0	19.0	7.0	*13.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.5	18.5	7.0	*14.5
Savannah	19.0	16.0	7.0	*12.0
Birm'ham, Ala.	19.5	16.5	8.0	12.0
Mobile	22.0	19.0	9.0	11.0
Montgomery	22.0	19.0	9.0	14.5
Jackson, Miss.	21.0	18.0	7.0	*13.0
Vicksburg	20.5	17.5	7.0	*13.0
Jacksonville, Fla.	20.5	17.5	8.0	11.0
Miami	20.5	17.5	8.0	†11.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	19.0	16.0	8.0	10.5
Lexington, Ky.	20.0	17.0	6.0	11.0
Covington	19.5	16.5	6.0	11.0
Louisville	20.0	17.0	6.0	10.5
Paducah	20.0	17.0	6.0	8.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	17.5	5.0	11.5
Grand Junction	20.0	5.0	15.0
Pueblo	17.5	5.0	10.5
Casper, Wyo.	18.0	5.0	11.5
Cheyenne	18.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	20.0	6.0	15.5
Helena	21.5	6.0	15.5
Great Falls	21.5	6.0	15.5
Salt Lake, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21.5	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	6.5	12.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag. con'r.	Di-vided dir.	Inc. tax	tank-wag.
Ohio points	17.0	16.0	5.0	*13.5

*Includes state tax of 1 cent.

Discounts to commercial consumers, contract: Effective Aug. 12, 1937, for Ohio state-wide, 20,000 gallons or over per month, 1 cent per gallon off commercial consumer tank-wagon price. Tank-wagon price is price to commercial consumers in deliveries of 25 gallons or more; less than 25 gallons gets service-station price. Price to undivided dealers is same as to commercial consumers.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Omaha	17.9	16.4	6.0	10.4
McCook	18.0	17.1	6.0	10.0
Norfolk	18.3	16.8	6.0	10.8
North Platte	18.7	17.2	6.0	11.2
Scotts Bluff	19.4	15.9	6.0	11.9

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract effective Jan. 1, 1935.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	9.0
Fresno, Calif.	18.5	19.5	4.0	12.0
Phoenix, Ariz.	21.0	22.0	6.0	‡16.0
Reno, Nev.	20.0	21.0	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Albany, N. Y.	15.0	13.5	5.0	9.0
*Met. N. Y.:				
Manh't'n, Br'nx	15.0	13.5	5.0	9.0
Staten Island	15.0	13.5	5.0	9.0
Q'ns & Brklyn	15.0	13.5	5.0	9.0
Buffalo	15.8	14.04	5.0	8.5
Rochester	15 3	13.92	5.0	8.5
Syracuse	15.5	14.1	5.0	9.0
Boston, Mass.	12.5	13.5	5.0	8.5
Portland, Me.	15.8	13.5	5.0	8.75
Manch'ter, N. H.	16.3	14.0	5.0	9.5
Burlington, Vt.	15.9	13.9	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point: Monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Ok.	15.0	5.0	7.0
Oklahoma City	14.0	5.0	8.0
Tulsa	14.0	5.0	7.0
Ft. Smith, Ark.	15.5	5.0	10.0
Little Rock	18.0	7.5	9.5
Texarkana	15.5	5.0	8.5

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	18.5	5.0	8.0
San Antonio	14.5	18.5	5.0	8.0

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	20.5	18.0	*10.0	†13.0
Baton Rouge	18.5	16.0	8.0	12.0
Alexandria	19.0	16.5	8.0	12.0
Lafayette	19.5	17.0	8.0	13.0
Lake Charles	19.5	17.0	8.0	12.5
Shreveport	18.0	15.5	8.0	9.5
Knoxville, Tenn.	21.5	19.0	8.0	14.0
Memphis	19.5	17.0	8.0	12.0
Chattanooga	21.0	18.5	8.0	13.5
Nashville	20.5	18.0	8.0	11.0
Bristol	20.25	19.0	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Standard of La. has transferred all stations to dealers except in New Orleans and Baton Rouge where station prices are 24 and 22 cents per gallon, respectively.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1 cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	14.5	13.0	5.0	10.5
Pittsburgh	15.5	13.5	5.0	11.0
Allentown	15.0	13.5	5.0	11.0
Erie	14.5	13.0	5.0	10.0
Scranton	15.0	13.5	5.0	11.0
Altoona	15.5	13.5	5.0	11.0
Dover, Del.	14.5	....	5.0	11.0
Wilmington	14.0	....	5.0	11.0
Springf'ld, Mass.	14.8	....	4.0	9.0
Worcester	14.8	....	4.0	9.0
Hartford, Conn.	14.6	....	4.0	9.0
New Haven	14.0	....	4.0	9.0
Providence, R. I.	14.0	....	4.0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N.S.	24.0	8.0	18.5
St. John, N.B.	24.0	8.0	18.5
Montreal, Que.	21 0	6.0	17.5
Toronto, Ont.	22 0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	28.2	7.0	20.7
Brandon, Man.	29 8	7.0	22.3
Regina, Sask.	29.5	7.0	22.0
Saskatoon, Sask.	32 3	7.0	24.8
Edmonton, Alta.	30.5	7.0	24.2
Calgary, Alta.	28.0	7.0	21.5
Vancouver, B.C.	23 0	7 0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. (Indiana) August 19 advanced tank-wagon kerosene 1.1 cents in St. Joseph.

New York Market

(Continued from Page 137)

is the only spot on the north Atlantic seaboard below 5¼ cents per gallon. The contracts offered to domestic consumers in New York and New Jersey continue to carry prices ranging from 7½ to 8½ cents per gallon for over-the-winter supplies.

Reports were current that heavy fuel oils are offered in slightly greater quantities on the Gulf Coast, but no open market sales were consummated at less than 95 cents per barrel. In New York, Bunker C fuel oil is still quoted at $1.35 per barrel by most sellers and at $1.50 per barrel by a few who are not in position to supply other than contract customers.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of August 24, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)		.05
63-67 octane	.05¼	.05½
68-70 octane (regular)		.06
60-62 400 grades:		
62 oct. and below (3d gr.)		.05
63-67 octane	.05¼	.05½
68-70 octane (regular)		.06
64-66 375	.05⅛	.05¼
68-70 360	.05¼	.05⅜

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below		.05
63-70 octane	.05¼	.05½
68-70 octane (regular)		.06
60-62 400		.05
64-66 375	.05⅛	.05¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.05½
63-67 octane	.05¾	.06
68-70 octane (regular)		.06½

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below		.05½
63-67 octane	.06	.06⅛
68-70 octane (regular)		.06½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.05	.05½
63-67 octane	.05⅜	.05½
68-70 octane (regular)	.06	.06⅛
60-62 400 grades:		
62 octane and below	.05	.05½
63-67 octane	.05⅜	.05½
68-70 octane (regular)	.06	.06⅛
64-66 375	.05	.05¼
68-70 360	.05⅛	.05⅜

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.06	.06¼
60-64.9 octane	.07⅜	.07⅝
65-70 octane	.07½	.07¾
64-66 375	.06¼	.06⅝
68-70 350	.06⅜	.06½

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)		.07⅛
Baltimore		.07¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)	.07½	.07¾
Philadelphia	.07½	.07¾
Boston		.07¾
Baltimore	.07½	.07¾
Charleston, S. C.		.07¾
U. S. Motor, 65 and above:		
*New York (Bayonne)	.08	.08½
Philadelphia	.07¾	.08¼
Boston	.08	.08½
Baltimore		.08
Charleston, S. C.		.08

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:	
Below 60 octane	.06¼
60-64.9	.06⅝
65 octane and higher	.06½

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05¾	.06
52-54 450 (blending)	.05¾	.06
54-56 450 (blending)	.05⅞	.06⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04
Grade 18-55	.04¾	.04⅞

NORTH TEXAS—

Grade 26-70		.04⅛
Grade 18-55	.04⅞	.05

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04	.04⅛

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.04	.04¼
41-43 gr., 300-350 i.b.p., 110-125 flash, 500-520 e.p.	.04⅝	.04⅝
46-48 gr., 210-230 i.b.p., 480 max. e.p.	.04¾	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

NORTH TEXAS—

41-43	.04	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43		.04⅝

ARKANSAS (Ark., N. La., Miss. del.)—

41-43		.04⅝

PENNSYLVANIA (inland refineries)—

45		.05
46		.05⅛
47		.05¼

CHICAGO (Based on Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.06

NEW YORK (Bayonne, N. J.)—

41-43	.05½	.05¾

***GULF COAST (domestic)—**

41-43	.05

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03¼	.03½
No. 3 zero to 15, 28-32	.03⅛	.03⅜
No. 3, 15 and above, 28-32	.02⅝	.02¾

NORTH TEXAS—

No. 1 prime white, 38-42		.04
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03⅛	.03¼
No. 3, 15 and above, 28-32	.02⅝	.02¾

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2	.05⅝	.05⅞
*No. 4	.05⅛	.05⅝

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.05	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.80	.85

NORTH TEXAS—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.05	1.12½
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.80	.85

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.05	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
No. 6, low cold test, 10-16	.80	.85

PENNSYLVANIA (inland refineries)—

36-40	.04⅝	.04½

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.25	1.40
24 plus diesel, per bbl.	1.20	1.50
24 plus diesel (bunkers)	1.55	1.65
12-16 (bunkers at tidewater)	1.05	1.20
10-16 (cargo lots)	.95	1.15
12-17 (tankcars)	1.00	1.15
10-17 (high sulfur)	.55	.95
San Joaquin Valley:		
10-18 (tankcars)	.75	1.00
24 plus diesel, per bbl.	1.50	1.65
San Francisco:		
27 plus diesel		1.60
24 plus diesel (bunkers)		1.75
10-16 (bunkers)		1.15

GULF COAST—

28-30 gas oil	.04⅛	.04¼
28-30 diesel (bunkers)		1.90
Bunkers (bulk cargoes)		.95
Bunker C (bunkers)		1.05

NEW YORK (Bayonne N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tankcars)		.05
Bunker C (to ocean-going ships in N. Y. harbor)	1.35	1.50
Industrial fuel (tankcars)		.04½

Lighterage charge 5c bbl additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.22
150-160 D, 0-10		.19
150-160 D, 15-25		.18½
150-160 E, 15-25		.18
100-110 D, 0-10		.17
Steam refined:		
631 green (treated)		.16
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 145-50 at 210, 545-550 flash):		
10 pour test	.24	.24½
15 pour test	.23	.23½
20 pour test	.22	.22½
25 pour test	.21	.21½
Steam refined:		
600	.14	.14½
650	.16½	.17
600 Pennsylvania flash	.17½	.18
630 flash	.21½	.22
600 Warren E filtered	.17½	.18

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2¼-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11¼
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 750° F. color, 400-405 flash:		
Zero pour test	.22½	.23
10 pour test	.21½	.22
15 pour test	.21	.21½
25 pour test	.20	.20½
180 vis. at 70° F., 3 color:		
25 pour test	.23	.23½
200 vis. at 70° F., 3 color:		
Zero pour test	.27	.27½
10 pour test	.26	.26½
15 pour test	.25½	.26
25 pour test	.24½	.25

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale		.03

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0295	.0300
124-126 (a.m.p.) w.c. scale	.0300	.0305

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0295	.0300
124-126 (a.m.p.) y.s.	.0265	.0280
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.06¼
60-62 400	.06	.06½
61-63 390	.06⅛	.06¼
64-66 375		.06⅜

LOS ANGELES—

U. S. Motor grades:		
55-65 octane		.04¾
65-67 octane		.05
67-69 octane		.05¼
Above 69 octane	.05¾	.06¼

KEROSENE

GULF COAST—

41-43 prime white		.04⅞
41-43 water white		.05
44 water white		.05⅝

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.26½	.27
600 S.R. unfiltered	.24	.24½
630 S.R. unfiltered	.25½	.26
600 flash, S.R.	.26½	.27
630 flash, S.R.	.31½	.32
Bright Stocks:		
8 color	.32	.32½
6½ plus color in dilution	.31½	.32

NEUTRAL OIL

200-3 color	.34	.34½
150-3 color	.29½	.30

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
133-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude scale:		
124-126 w.s.	.0295	.0300
124-126 y.s.	.0265	.0280

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.

Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light.*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.82
Hogback, N. Mex.*	1.33
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. Mex.	.90
Maljamar, N. Mex.	.90
Canon City and Florence, Colo.	1.10
Florence, Colo.	.98
Lance Creek, Wyo.	.97
Sunburst, Mont. (June 5, 1936)	1.20
Cat Creek, Mont.	1.40
Cut Bank, Mont.	1.35

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La.	See note below
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36.

Middle Western States

OHIO OIL CO.

(Effective January 28, 1937)

Lima	$1.25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (July 23, 1937)*	1.27
West Branch, Mich. (July 22, 1937)	1.09
Buckeye (July 23, 1937)	1.24½
Arenac, Mich. (July 1, 1937)	1.21
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.

Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll Clark, Zoboroski	1.09
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$.90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90

Eastern States

TIDE WATER PIPE LINE CO.

(Effective June 7, 1937)

Bradford, Pa.	$2.82
Allegany, N. Y.	2.82

SOUTH PENN OIL CO.

(Effective June 7, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.82
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.57
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.52
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.37
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Jan. 29, 1937)	1.42

PENNZOIL CO.

(Effective June 7, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	2.82
Group B — Includes Tidioute district.	2.81
Group C — Includes Turkey and Tidioute districts.	2.80
Group D — Includes Bear Creek and Porkey districts.	2.79
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts. Price depends on lengths of pipe line haul to plant at Oil City.	2.76

PURE OIL CO.

(Effective June 7, 1937)

Cabin Creek, W. Va.	2.52
Bradford Hollow, W. Va.	2.52
Kelly Creek, W. Va.	2.52

Canada

Ontario (Sept. 9, 1933)*	
Petrolia	$2.10
Oil Springs	2.17
Turner Valley, Alberta province (Dec. 16, 1936):†	
Clear naphtha	$2.60
Discolored naphtha, 65 gravity and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.55
Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity	2.27

These prices delivered field tankage.
*Imperial Oil, Ltd.
†Imperial Oil, Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936.

Mexico

Panuco*	$1.24

*In U. S. currency, f.o.b. ship, based on April spot market transactions.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, Deep, Satsuma	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County,	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co. prices start at 30-30.9 gravity at $1.16 adding 2 cents for each degree upward to and including 40 and over at $1.36.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Texas Wildcats

(Continued from Page 131)

A. G. Swanson No. 1 Manley, 7 mi. S Nugent, 660 ft. from S and E of SW¼ sec. 46, T.&P. Sur., Blk. 14. Drlg. 1,410 ft.

Ungren & Frazier et al No. 1 Carl Ecdahl, 3½ mi. NE Avoca, 330 ft. from S and E of NW¼ sec. 188, B.B.B.&C. Sur. Spdg.

Ungren & Frazier et al No. 1 S. W. Harvey, 3 mi. SE Nugent, sec. 20, Blk. 14, T.&P. Sur. Drlg. 1,812 ft.

Ungren & Frazier No. 1 Melton, 4½ mi. SW Hawley, 1,100 ft. from N and E of farm in John Winters Sur. Drlg. 1,900 ft.

Ungren & Frazier & West No. 1 Southard, 3 mi. SE Avoca, 330 ft. from N and W of SE¼ sec. 202, B.B.B.&C. Sur. Loc.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, 600 ft. from N and W of SE¼ sec. 51, T.&P. Sur., Blk. A (E of B). S.D. for pipe 400 ft.

Bill Cole et al No. 1 J. W. Harris Est., NW cor. county, 330 ft. from E line and 2,170 ft. from S line of Fr. De La Garza Sur. Drk.

Paul Garrett No. 1 Mabry heirs, NE cor. county, sec. 2,572, T.E.&L. Sur. S.D. 470 ft.

Henry Hobbs et al No. 1 Bessie Holt, 4 mi. S. Graford, sec. 1,783, T.E.&L. Sur. S.D. 200 ft.

Lone Star Gas Co. No. 1 Hart Oil Corp., CWL county, 2,665 ft. from E and 2,667 ft. from S of sec. 19n, T.&P. Sur., Blk. 3. 4,000-ft. test; drlg. 400 ft.

Earnest Lloyd et al No. 1 Bailey, 3 mi. NE Graford, sec. 2,003, T.E.&L. Sur. S.D. 1,802 ft.

Shackelford County

Humble O. & R. Co. No. 4 Geo. DeLafosse, E C line county, sec. 1550, T.E.&L. Sur. T.D. 4,434 ft.; P.B.

M. P. Moore et al No. 1 Geo. Gray, W side Bluff Creek pool, sec. 208, E.T.R.R. Sur. L. 1,813-16 ft.; U.R. 6⅝-in.

Stephens County

Barnett Pet. Corp. No. 1 J. Q. Corbett, 4 mi. SE Ivan, sec. 3, S.P.R.R. Sur., Blk. 3. Drlg. 3,295 ft.

Clark & Cowden et al No. 2 Echols Heirs, Blk. 3. Fsg. baller 4,005 ft.

Cox & Caprito No. 1 Donnell, 1 mi. SW Eliasville, sec. 1,208, T.E.&L. Sur. Rng. 6⅝-in. to 2,900 ft.

Dean Bros. & Fortex Oil Corp. No. 1 Watson, 5 mi. SW Caddo, sec. 28, T.&P. Sur., Blk. 6. Drlg. 975 ft.

W. B. Hamilton No. 1 B. O. Grant, CWL of county, 1,452 ft. from N and 2,384 ft. from W of sec. 63, B.A.L. Sur. 2,500-ft. test; drlg. 650 ft.

O. J. Perren No. 1 J. K. P. Hughes, NE cor. County of NW¼ sec. 6 A.B.&M. Sur., Abst. 2,683. Drlg. 3,750 ft.

Philtop O. & G. Co. No. 1 T. M. Corbett, 8 mi. NE Caddo, Edward Romershausen Sur., Abst. 149. Sd. 3,952-57 ft.; T.D. 4,008 ft. treated with 3,000 gals. acid; tstg.

W. J. Rhodes No. 1 Black Bros., 8 mi. NE Breckenridge, sec. 1,135, T.E.&L. Sur. Drlg. 2,465 ft.

Stonewall County

General Crude Oil Co. No. 1 W. J. Bryan, 7 mi. N Hamlin, Subd. 10, Wm. Vardeman Sur. No. 347. Cored sd. 4,347-52 ft.; T.D. 4,380 ft.; C.O.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft.

Taylor County

Louis Davis No. 1 E. Lincicum, NE cor. county, 350 ft. from N and 500 ft. from E of NW¼ sec. 21, B.A.L. Sur. Drlg. 1,600 ft.

Throckmorton County

Carl B. Bailey No. 1 Mrs. Minnie Smith, NE cor. county, 1,854 ft. from N line and 450 ft. from W line, sec. 2,440, T. E.&L. Sur. S.D. 1,500 ft.

G. C. Foster No. 2 Brown, 5 mi. NW Woodson, 2,477 ft. from E. 536 ft. from S of sec. 920, T.E.&L. Sur. Drlg. 1,250 ft.

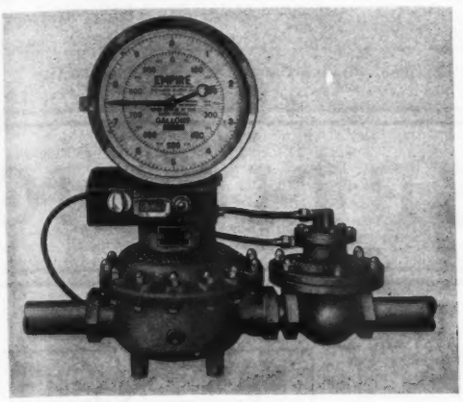
Wise County

Latex Oil Co. No. 1 Smith, 3 mi. E of Bridgeport, Jas. Couch Sur. T.D. 3,850 ft.; prep. to core.

NEW OR IMPROVED EQUIPMENT

Overfilling, Spilling Prevented By Automatic Shutoff Device

An automatic predetermined shutoff mechanism for Empire petroleum meters is announced by the National Meter Co., 4207 First Avenue, New



York. Designed for use with 1¼- to 3-inch Empire meters on tank-trucks, this unit not only prevents overfilling and spilling, but provides other advantages.

The Empire Hydro-Measure-Matic meter consists of an Empire meter with a preset register interconnected with a hydraulic valve by strong, armored, flexible copper tubing, a unit rugged in construction and designed to withstand the most severe tank-truck service. As the valve is operated hydraulically, there are no mechanical connections between the meter and the valve, no rods or links easily bent or forced out of alignment in handling hose or by shifting measures, thus causing incomplete shutoff and attendant losses of revenue through overdelivery or spilling.

The dial and controls can be faced in eight directions for ease and accuracy of operation, while the valve can be placed in positions remote from the meter. A meter duplicator can be attached by removing the cap over the shaft and bolting the bracket to the meter casing. As the register knob may be rotated in either direction, the slightest turn will preset the meter to deliver either 1 or 1,000 gallons.

Bulletins, Booklets and Other Literature for the Trade

The Bonney Forge & Tool Works, Allentown, Pa., has ready for distribution a 16-page illustrated bulletin devoted to Bonney Weldolets and Thredolets.

In a new bulletin the Mine Safety Appliances Co., Braddock, Thomas and Meade Streets, Pittsburgh, Pa., describes its H-H inhalator, used in the resuscitation of victims of carbon-monoxide poisoning, gas asphyxia, electric shock, drowning, acute alcoholic intoxication, morphine narcosis, asphyxia in the newborn, and in the supportive treatment of pneumonia.

Two new bulletins announced by Fairbanks, Morse & Co., 900 South Wabash Avenue, Chicago, describe the company's line of deep-well turbine pumps with enclosed impellers. Bulletin 6920 deals with oil-lubricated units used for most applications. Bulletin 6920R covers water-lubricated units, used where the water must be kept pure and clean and oil lubrication is not permissible.

An 8-page illustrated list price book No. 1622, has been completed by Link-Belt Co., Chicago, on the subject of cast-iron pulleys for power transmission, giving pertinent data on solid and split, single and multiple-arm machine-molded pulleys, with and without rubber lagging.

A 72-page book, "Oil Testing Instruments," is announced by the American Instrument Co., of Silver Spring, Md. It presents information on the latest developments in the company's instruments for testing petroleum and its derivatives, compounds, asphalt, etc.

A new edition of "Hard-Facing With Haynes Stellite Products" has been issued by the Haynes Stellite Co., Kokomo, Ind., a unit of the Union Carbide & Carbon Corp. This 104-page booklet, describing more than 500 money-saving applications of the hard-facing process, is sent on request.

An article in the August issue of the Waukesha Engineering Record, published by the Waukesha Motor Co., Waukesha, Wis., gives detailed information about the Waukesha-Hesselman spark-ignition oil engine. It is made clear that this engine is not a semidiesel.

"Meehanite Metal for Engine Casting" is the title of an attractively printed and illustrated 16-page booklet obtainable from the Cooper-Bessemer Corp., Mount Vernon, Ohio. The company's foundries are now using this metal exclusively for all iron castings.

Gun-perforation of wells in the Turner Valley field of Alberta, Canada, is the subject of the leading article in the August number of Hot Shots, published by the Lane-Wells Co., 5610 South Soto Street, Los Angeles, Calif.

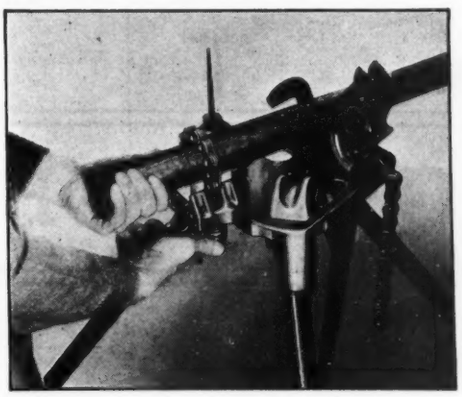
Either Drillpipe or Tooljoint Is Caught With New Overshot

Either drillpipe or tooljoint can be caught with the improved releasing and circulating overshot, double-bowl type, put on the market by the American Iron and Machine Works Co., of Houston, Tex., and Oklahoma City, Okla. The device is provided with both drillpipe and tooljoint slips. The toolpusher who has this overshot on hand does not face the necessity of hurrying to some supply point in emergencies to get slips different from those he happens to have. This advantage frequently means an important saving of time.

Danger of the fish freezing or falling into a cavity is virtually eliminated by reason of the fact that the drillstem can be run into the hole for the fish at once. The regular-type American overshot can be converted into the new double-bowl type by ordering extra slips and the necessary integral parts. The parts of the original American overshot, such as wall-hooks and milling-shoes, are made to interchange with those of the double-bowl type of the same model.

Stand, Pipe-Vise, Pipe-Bender Are Combined in One Tool

J. H. Williams & Co., 75 Spring Street, New York, announce the Vulcan vise stand No. V-1, a portable unit combining stand, chain pipe-vise and



pipe-bender. The base is made of high-grade malleable iron, sturdy and well reinforced. Legs are 1-inch pipe with upset feet punched for fastening to the floor, if desired. They fold for carrying and are held together by a tie-chain. The vise-jaw is of tool steel, carefully hardened and tempered.

The vise stand is finished in orange enamel with black legs, weighs 35 pounds and takes pipe one-eighth to 2 inches. The pipe-bender handles pipe up to three-fourths inch.

M. E. Nicklin Joins Oil Well

M. E. Nicklin has resigned as export sales manager for the Waukesha Motor Co. to become assistant to W. C. Ramsey, manager of the machinery division of the Oil Well Supply Co., with headquarters in Oil City, Pa. Mr. Nicklin entered the employ of Waukesha 10 years ago as a sales engineer in the oil-field division. With the reorganization of the export operations, Mr. Nicklin became export sales manager in 1936, and in July of that year he made an extended European trip to expand the market for Waukesha engines. More recently he made a survey throughout South America and Central America, which took him more than 30,000 miles, and into a dozen different countries, most of his journey being made by air. A native of Pennsylvania, Mr. Nicklin is a graduate of Pennsylvania State College in mechanical engineering.

Arthur Young Retires

Arthur H. Young, vice president in charge of industrial relations of the United States Steel Corp., will retire October 1. He will reside in Carpinteria, Calif., where he has acquired a fruit ranch. Mr. Young has been active in the field of industrial relations 30 years. His retirement is induced by impaired health, necessitating a permanent change of climate. He will be succeeded by William Beye, of Chicago, a member of the law firm of Knapp, Beye & Cushing, division counsel of the United States Steel Corp. in Chicago.

Oil Man's Calendar

September

6-10—Rochester, N. Y., American Chemical Society.
7-8—Louisville, Ky., Kentucky Petroleum Marketers Association, Annual Fall Conference.
7-9—Glacier Park, Montana, National Bituminous Conference.
13-16—San Francisco, Calif., North American Gasoline Tax Conference.
15-17—Atlantic City, National Petroleum Association, annual meeting, Hotel Traymore.
16-19—Taft, Calif., Pacific Oil Show and Black Gold Festival.
24-25—Traverse City, Mich., Michigan Petroleum Association.
29-30—Cleveland, Ohio, Ohio Petroleum Marketers Association, Fall Conference, Hotel Carter.

September—October

27-Oct. 1—Rochester, National Association of Petroleum Retailers, fifth national convention.
27-Oct. 1—Cleveland, Ohio, American Gas Association, nineteenth annual convention.
30-Oct. 1.—Tulsa, S.A.E. Fuels and Lubricants Regional Meeting.

October

7-8—Oklahoma City, fall meeting of Petroleum Division of A.I.M.E., Hotel Biltmore.
7-9—Los Angeles, Calif., S.A.E. National Aircraft Production Meeting, Ambassador Hotel.
11-15—Kansas City, Mo. — Twenty-sixth National Safety Congress and Exposition.
11-16—Houston, Tex., Oil-World Exposition.
12-14—Chicago, Ill., National Oil Marketers Association Convention, Stevens Hotel.
14-16—Pittsburgh, Pa., mid-year meeting, American Association of Petroleum Geologists, William Penn Hotel.
14-16—Houston, Tex., Independent Petroleum Association of America, annual meeting.
18-22—Atlantic City, N. J., American Welding Society, Eighteenth Annual Meeting and Welding Exposition.
27-28—Indianapolis, Ind., Indiana Independent Petroleum Association, Annual Fall Convention, Hotel Severin.
28—New York, S.A.E. Annual Dinner, Commodore Hotel.
29-30—Dallas, Tex., Mid-Continent Oil and Gas Association of Texas, annual meeting.

October—November

27-Nov. 3—New York, National Automobile Show, Grand Central Palace.

November

8-12—Chicago, American Petroleum Institute, Eighteenth Annual Meeting, Stevens Hotel.
16—New York, Oil Trades Association of New York.

December

6—Memphis, Tenn., National Asphalt Congress.
6-11—New York, Exposition of Chemical Industries, Grand Central Palace.
8-10—Flint, Mich., S.A.E. National Production Meeting.

1938

March

16-18—New Orleans, twenty-third annual meeting, American Association of Petroleum Geologists, Roosevelt Hotel.

April

17-21—Dallas, Tex., American Chemical Society.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents Obtained — Infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to any one, send for blank form:
"Evidence of Conception."
Instructions "How to Establish Your Rights" and complete information FREE!
LANCASTER, ALLWINE & ROMMEL
418 Bowen Building,
Washington, D. C.

Business Opportunities

WANTED contractor with rotary to rotate 40" holes, 300' deep each, through clay, hard pan, sand and gravel, or may purchase portable equipment capable of same. Give complete description and price. Address Box H-923, The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

CHEMIST-CHEM. ENGR. 10 years' experience major oil company refinery development and operation, particularly new lube processes. Interested in directing developments or operation. Address Box H-893, The Oil and Gas Journal, Tulsa, Oklahoma.

LAND MAN and graduate engineer, over 12 years experience in field work and as department head with major company. Now have responsible position with major but want place in land dept. of progressive independent. Best references furnished. Address Box H-914, The Oil and Gas Journal, Tulsa, Okla.

GEOLOGIST and Engineer having Field Dept. established in Stamford, Texas, for several years, wishes an eastern financial connection for the development of wildcat properties and proven and semiproven royalties and other worthy oil investments, in Jones, Throckmorton and Young counties. References will be furnished successful brokers, agents and operating company. Address reply to P. O. Box 547, Stamford, Texas.

METALLURGIST seeks connection with corporation having or desiring to organize metallurgical dept. Now employed in a large oil refinery. Mature, reliable and aggressive; technically trained, unusually qualified by experience in foundries, steel mills and other metallurgical plants. Can direct material and metal testing, standardization and specification. Address Box H-920, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

WANTED—Experienced, competent and responsible rotary tool pusher; preferably man pushing tools for a drilling contractor. "Has Beens" or ambitious drillers need not apply as must have man already engaged in pushing tools. Steady work and good salary assured. Applications should be mailed to Box H-850, The Oil and Gas Journal, Tulsa, Oklahoma.

HELP WANTED
We have an opening for an experienced man to promote sale of cable tools direct to the user and through dealers. Must be fully conversant with the design and manufacture of drilling and fishing tools and have proven sales promotion ability. Give full particulars in writing to THE STAR DRILLING MACHINE COMPANY, Akron, Ohio.

Incorporations

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

Royalties

WANTED—Deeded Land-Owners Non-Producing Royalties under lease to major company. Quote lowest cash price. CALIFORNIA LAND & INVESTMENT CO., 741½ So. Alvarado St., Los Angeles, Calif.

ROYALTY to offer in LEA COUNTY, NEW MEXICO, and YOAKUM COUNTY, TEXAS. J. W. Wallrich, Lovington, N. M.

TEN ACRES Wilcox sand producing royalty under 160 acre lease FOR SALE BY OWNER; additional probable locations. Box H-925, The Oil and Gas Journal, Tulsa, Okla.

BARGAIN
40 acres FEE LAND including all oil royalty, adjoins seismograph structure of Sinclair Prairie. Nearby leases held by Magnolia, Mid-Continent, Gulf and other major companies. Write or wire.
G. E. FISHER
Key Building, Oklahoma City, Okla.

Oil Royalties and Oil and Gas Leases
Bought and Sold
E. T. Marion
1109 Petroleum Building
Midland, Texas.

Royalties

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

F. A. SANSOME
Maintains a Complete Trading Organization for Brokers, Banks and Dealers
In
Oil Royalties.
522 Fifth Avenue, New York, N. Y.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

109 NEW oil fields and sands discovered in South Texas last 18 months. Royalties, leases or fee lands, close in or in trend carefully selected. Drilling blocks on structure. 20 years this area. M. E. BOGLE, Box 40, San Antonio, Texas.

Mailing Lists

ROYALTY INVESTORS, by deed. Speculators in low priced leases. Both by states. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

Financing

CAPITAL raised for development of Oil and Mining properties. Delaware Charters. J. B. Murrow, 299 Broadway, New York.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*

	1 time	2 times	3 times	4 times
7 Lines	*$2.45*	*$4.20*	*$5.95*	*$7.70*
8 Lines	*2.80*	*4.80*	*6.80*	*8.80*
9 Lines	*3.15*	*5.40*	*7.65*	*9.90*
10 Lines	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

ANY OR ALL PRODUCERS & REFINERS CORP. PLANT FOR SALE

2100 South Union, West Tulsa, Oklahoma

2—1,500 BBL. Dubbs cracking units complete, 6,000 bbl. skimming plant, 6,000 bbl. latest type Winkler-Koch pipe still with 9' diameter x 96' high tower, installed July 1932, in service two weeks. Inventories will be ready soon.

Wire—Phone—Write—W. C. Berry or H. J. Galamba

SONKEN-GALAMBA SUPPLY COMPANY

64 North Second St.
Kansas City, Kansas

Room J. Mayo Hotel
Tulsa, Oklahoma

1—6' Cincinnati-Bickford Full Universal Motor Driven Radial Drill.
1—72" Swing Niles Motor Driven Radial Drill.
1—26" x 12' L & S Engine Lathe.
1—20" x 10' LeBond Engine Lathe.
1—2½" capacity Acme Bolt Cutter.
NOLAN SALES CORP.
404 E. Second St., Tulsa, Okla. Ph. 3-4897.

FOR SALE CHEAP—Two new 1½ KW Moon type 4C Steam Turbine Generators, guaranteed A-1 condition. Bargain to quick buyer. PRICHARD SUPPLY CO., Manningtton, W. Va.

WELDERS A.C. and D.C. electric motor and engine driven. Reconditioned. Service Co., 3732 Cedar Ave., Cleveland, Ohio.

FOR SALE Eleven (11) 72-foot American Angle Iron Derricks, standing up. Also one structural steel building 23' x 41' standing. MORAN PIPE & SUPPLY CO., Seminole, Okla. Phone 566.

For Sale

First Class Used Line Pipe

Perfect Threads and Couplings

50,000 feet	2"	Steel
100,000 feet	2"	Wrought Iron
50,000 feet	3"	Steel
100,000 feet	3"	Wrought Iron
75,000 feet	4"	Steel
125,000 feet	4"	Wrought Iron
100,000 feet	6"	Steel
150,000 feet	6"	Wrought Iron
40,000 feet	8"	Steel
10,000 feet	10"	Steel

WIRE, WRITE OR PHONE YOUR INQUIRIES

L. B. FOSTER COMPANY, INC.

P. O. Box 1647
Pittsburgh, Pa.

FOR SALE: Keystone No. 32 machine, boiler and tools. Inquire Probate Court, Emporia, Kansas.

FOR SALE—Wire lines from ⅛" to 1½". MORAN PIPE & SUPPLY CO., Seminole, Oklahoma. Phone 566.

FOR SALE — Igniters and other new parts for Ohio stationary gas and gasoline engines. FRANK J. WAGNER, Sandusky, Ohio.

WELDERS BARGAINS—Demonstrators, reconditioned, new and used. 30 Days Trial and terms if desired. Write for list. Hobart Welder Exchange, Box OG-1, Troy, Ohio.

1—100 K.V.A. Gen. Elec. alternater self excited, 3 phase 60 cyc., 2300 volts, 900 RPM., like new. BARRETT MACHINE CO., 1917 Exchange Ave., Oklahoma City. Phone 7-4262.

BOILER ROCKER GRATES
For oil well drillers, opens 100% air spaces, easily installed any kind coal, all boilers including Scotch Marines. Give size firebox. Travis Co., Henry, Illinois.

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25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor, Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

COMPRESSOR PLANT Complete. 4—90 H.P. Superior Twin Cyl. 2 cyc. direct connected to 4—11 x 5½ x 16 Bessemer compressors—steel bldg., all connections, first class. For details address owner, P.O. Box 1433, Oklahoma City, Okla.

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2 COMPLETE RIGS, rotary tools, located central Okla. 1—6 inch Union Tool and one smaller rig. For details and price address Owner, P.O. Box 1433, Oklahoma City, Okla.

Equipment Wanted

WANT TO RENT complete drilling rig equipped with three boilers one hundred twenty-five H.P. Hartford approved, also eight-inch drawworks and eighteen or twenty-inch mud pumps and sixty-two hundred feet four-inch drill pipe with option to purchase all after drilling first well on our Terry lease Rodessa extension area South Miller County, Arkansas. Also want purchase extra battery three boilers immediately. LAYTON OIL COMPANY, INC., Texarkana, Ark.

For Sale—Maps

SUCCESSFUL OIL OPERATORS
Are Using
ZINGERY OIL MAPS
Our Up-to-Date Lease and Fee Ownership Maps of Counties and Combination Development Maps Save Time and Money.
WRITE FOR DESCRIPTIVE FOLDER
1937 Revised Edition Map of State of Texas, eastern N. M., parts of southern Okla., SW Ark. and La. shows Oil and Gas Fields in color, Counties and County seat and elevations, co-ordinated alphabetical index of fields and counties.
Price $1.00 postpaid
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth, Texas

Crude Oil Production

DO YOU seek an outlet FOR CRUDE OIL? Will build loading racks or lay pipe lines if necessary. North Texas or Coastal crudes preferred. Cargo Oil Exports, Ltd., Chrysler Bldg., New York City.

Technical Writing

TECHNICAL papers, booklets, etc., written or revised by experienced oil chemist
JOHN W. POOLE
369 Lexington Ave. New York City

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Leases and Drilling Blocks

FOR LEASE—For oil and gas purposes, several hundred acres of land in Anderson Co., Kans. Oil has been found at shallow depth. W. M. DARY, 224 E. 16th St., Long Beach, Calif.

OWNERS will consider sale or farm-out of 1,000 acres proven shallow production in Eastern Oklahoma and Kansas. Brokers and parties without capital need not apply. Address Box H-924, The Oil and Gas Journal, Tulsa, Okla.

ILLINOIS Basin Acreage. Have several blocks of 2,000 acres Clinton County. Drilling basis only. On structure. Write Box 294, Carlyle, Ill.

LEASES, DRILLING BLOCKS ILLINOIS AND INDIANA BASINS. F. M. PIERSON, P. O. Drawer 748, Terre Haute, Ind.

Have You Pieces of Equipment to Sell at a Profit?

Leases to sell or trade? Need additional capital to expand your plans? Or perhaps you have potential oil lands to lease or sell outright, or wish to contact a responsible drilling contractor to take a part interest for developing.

Whatever may be your reason for wishing to call the attention of the oil-minded men of the world to your proposition, there is one effective medium: the CLASSIFIED COLUMNS of THE OIL AND GAS JOURNAL.

Refer to our rates on the preceding page. You will find these rates little, if any, more than those of your daily newspaper.

The Oil and Gas Journal
Classified Dept.
Tulsa, Oklahoma

Leases and Drilling Blocks

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

WANTED: Stripper oil production or wells or leases that are ready for salvage. Address Box H-724, The Oil and Gas Journal, Tulsa, Oklahoma.

ARKANSAS
Does not have any production (proration) restrictions. The opportunity for quick "payouts" is obvious. Come here and investigate royalty and lease opportunities.
WILLIAM MONROE LAYTON
P. O. Box 411 Texarkana, Ark.

LEASES
DRILLING BLOCKS
(1) 2,500-acre drilling block, Balcones Fault area, good geology, for bonus $1.00 acre and 2,500-ft. well.
(2) 260-acre lease, with two producers, South Texas area, will sell half interest for $5,000.00 cash and one well to 3,000 feet.
(3) Want broker to handle about 100 leases of ten acres each, near well now drilling. Will furnish complete kits of geological maps and reports, subdivision maps and all needed documents.
OWNER,
Box 149, Belton, Texas

I OWN 3,000 acres free in N. Pittsburgh & Atoka Cos. 40 to 1,000 A. tracts, no trades. Cash sale, lease or royalty, $5 to $25 per A. Townsite on 2 R.RS. near production. J. E. Cavanagh, Baker, Oregon.

LEASES, ROYALTIES, lands in fee, against development; Alamo Badito structure now drilling. A semi proven field, favorable geology. Jas. Tressler, Walsenburg, Colorado.

CAN FIND any oil structure that will produce when penetrated. P. O. Box 303, Tonkawa, Oklahoma.

WANT TO BUY production or proven acreage in South Texas. S. F. SHAW, 301 Terrell Road, San Antonio, Texas.

NOTICE—DRILLING CONTRACTORS
Have 850 acres block, want drilled in Illinois Basin, Clay County. Leo H. Graves, Farina, Ill.

FOR SALE OR LEASE. 320 Acres of a 2,200 acre block in the Lance Creek Area, Niobrara County, Wyo. ROSS D. RASH, Gordon, Nebraska.

LIBERAL TERMS for a Niagaria test well. Large acreage, Southern Vigo Co., Ind. JESSE R. ALLEN, Pimento, Ind.

TEXAS DRILLING BLOCKS
ANY COUNTY.
Wm. P. McNeley Co., Milam Bldg.
San Antonio, Texas. C. 6265.

3,000 ACRES mineral rights, all on Fishing Creek dome. Now drilling deep Ordovician test within 1,500 feet. Recent test in other structures prove deep sands bear oil. This is one of outstanding structures in Kentucky. $3.00 per acre. Title perfect. Write or wire for more information. HAROLD HARDWICK, Burnside, Ky.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney, Box 1122, Little Rock, Arkansas.

SALT DOME LEASE, 160 acres, production offsetting north and south lines, three sands 900, 1800 and 3800 feet, 118 bbls. daily allowable selling $1.22. Full ⅞th to competent operator less small royalty or capital wanted to develop. M. E. BOGLE, Box 40, San Antonio, Texas.

WANTED—Stripper production, leases for abandonment, line pipe or casing. Box 215, Eldorado, Kansas.

WE HAVE complete rotary rigs, also casing, tubing, rods, power, tanks and all lease equipment to develop shallow proven lease. Will join parties with proven leases and money to develop. Address P.O. Box Box 1433, Oklahoma City, Okla.

OFFERING————DRILLING BLOCKS
40 acres tracts near tests.
SYDNOR'S OIL OFFICE
226 Bewley Bldg., Fort Worth, Texas.

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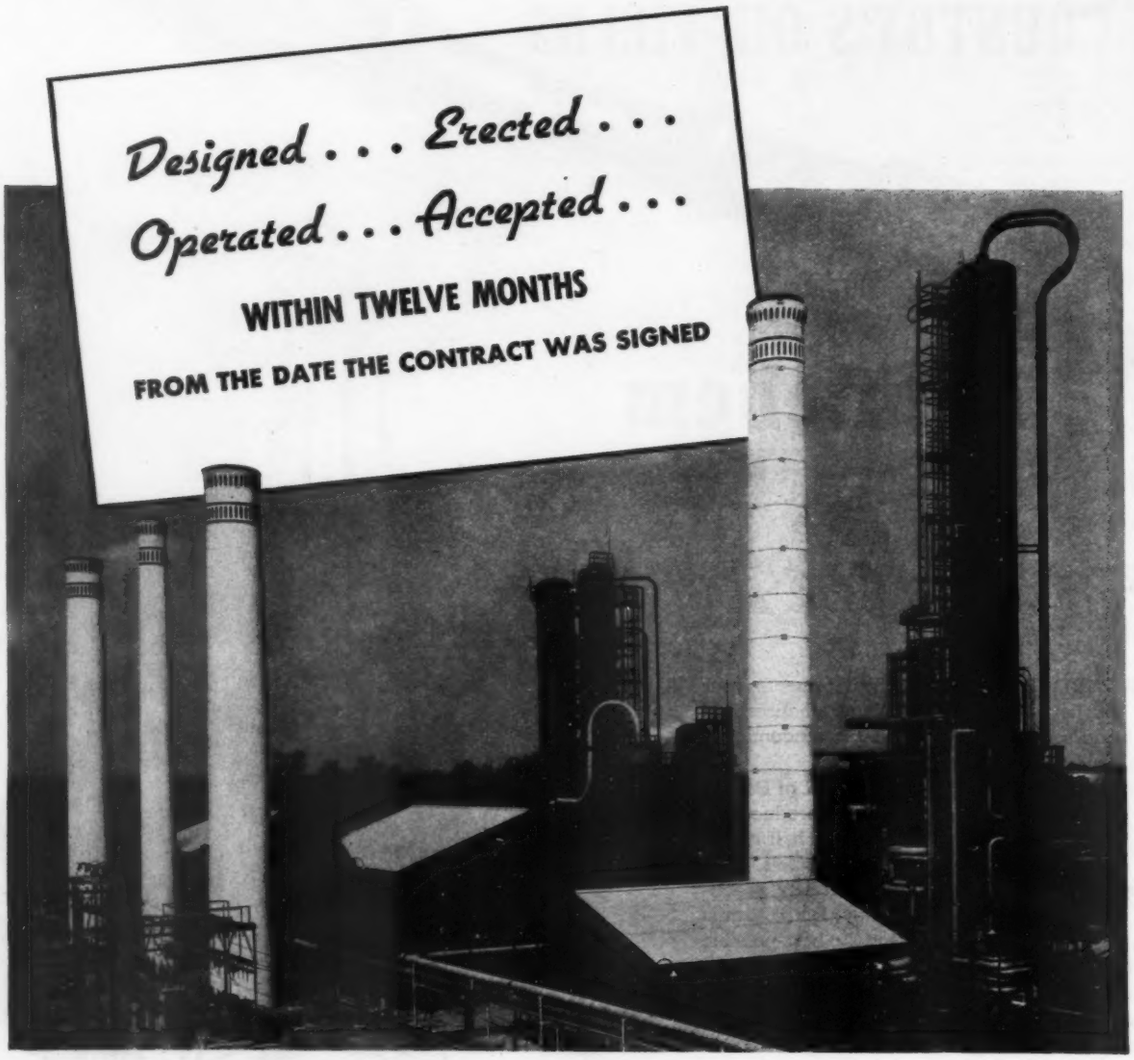

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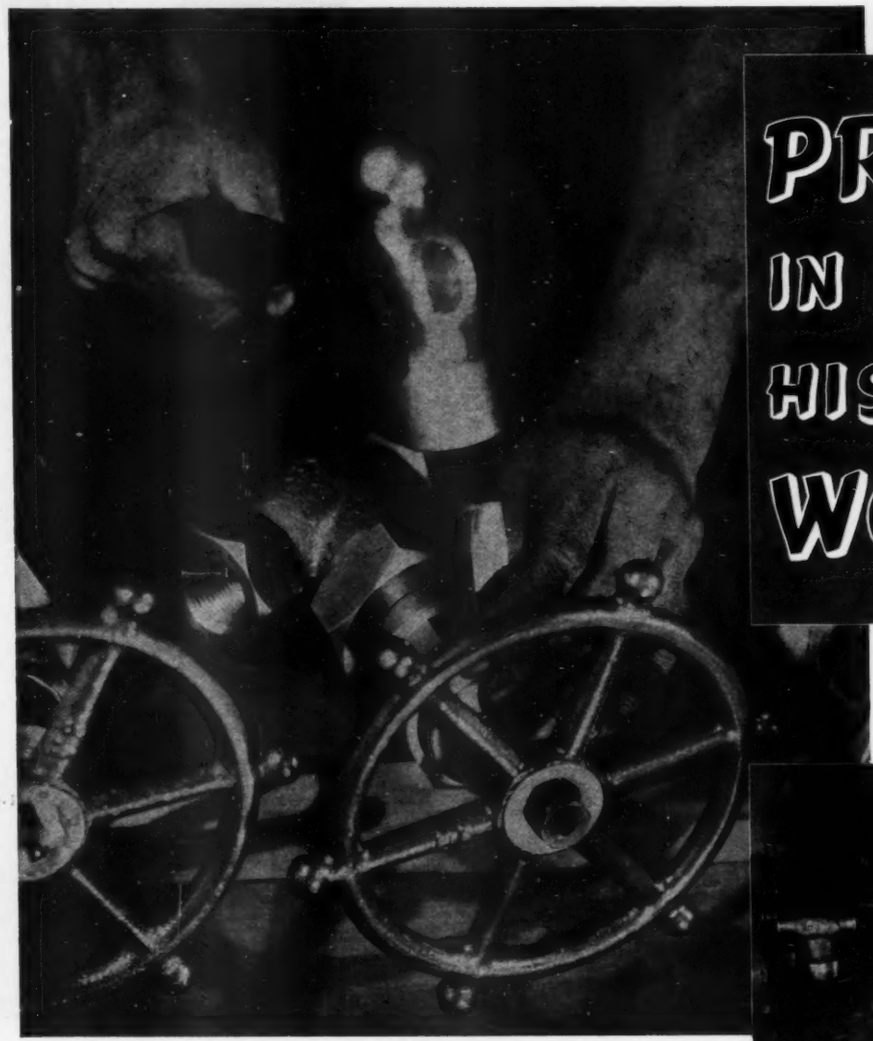

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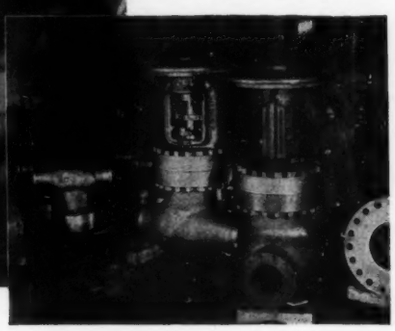

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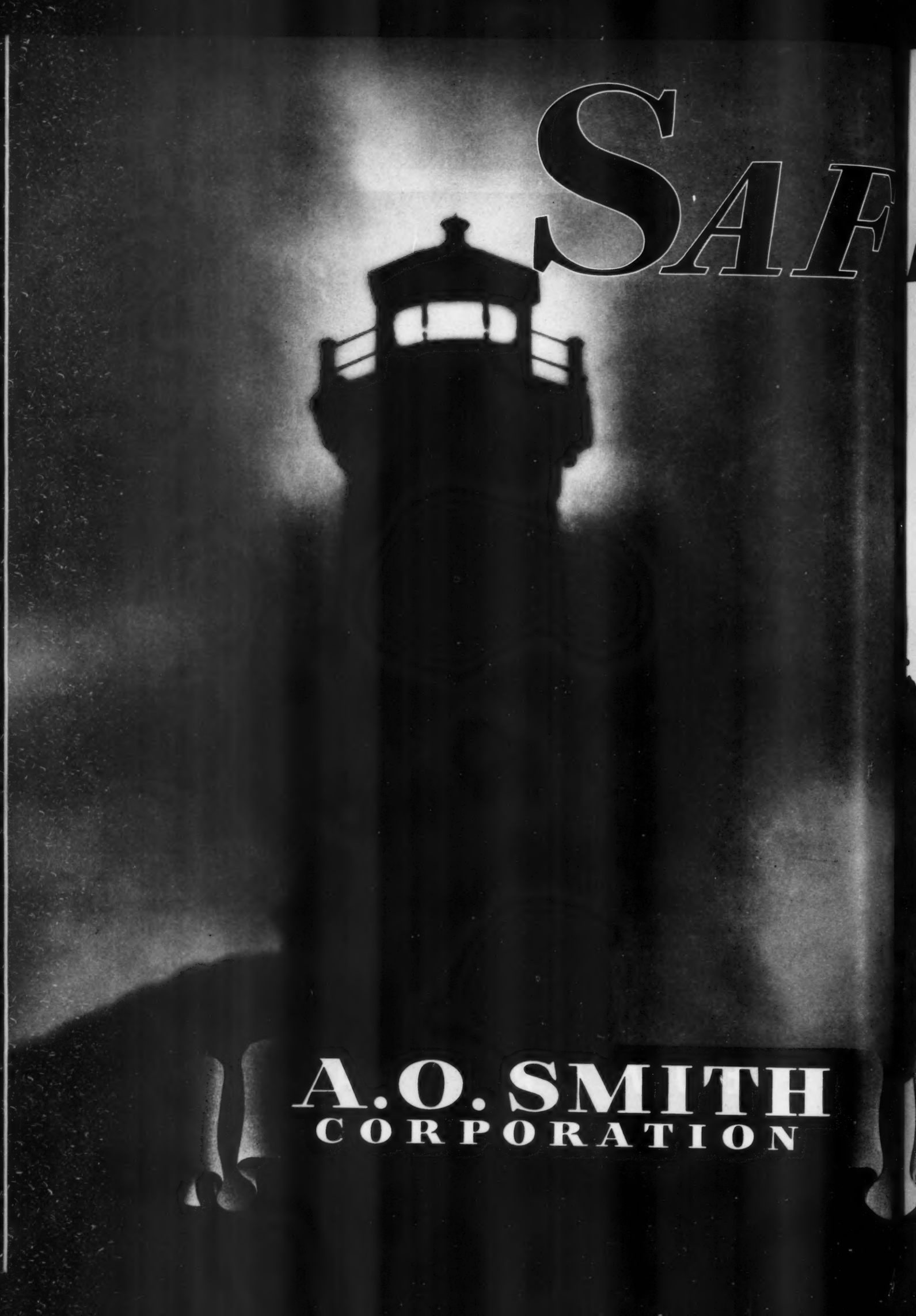
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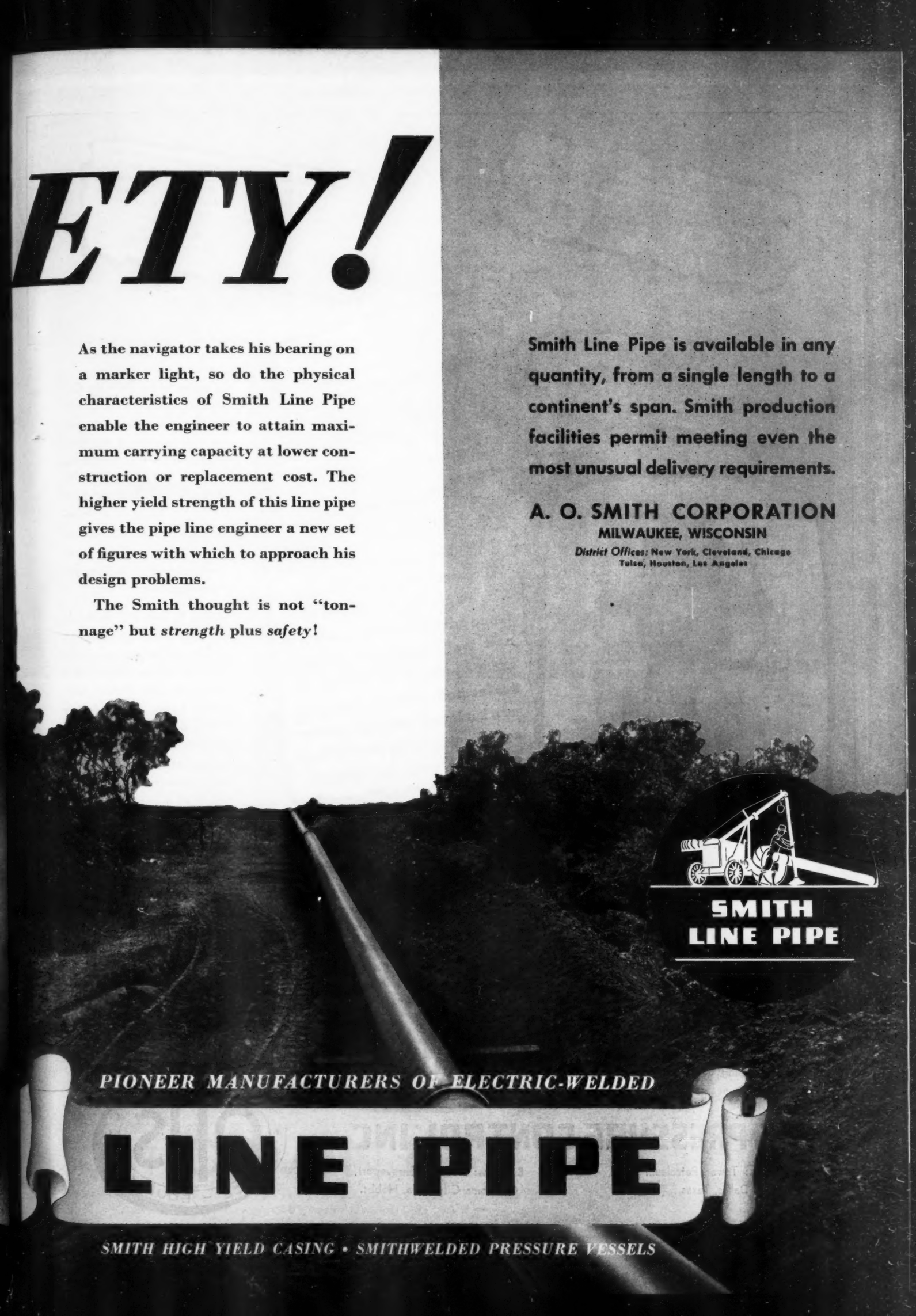

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conventional rotary equipment was not the best method to use in completing these deep Wilcox sand producers the operators turned to the pressure control method of well completion and practically every well in this zone has been completed by this method since last summer

Capitol Building. This well was completed by the pressure control method of drilling-in because the bottom-hole pressure in the Wilcox sand is about 500 pounds and if mud laden fluid had been used while drilling into the pay formation it is probable the well would have been nonproductive. When the original wells were drilled in the Oklahoma City field the formation pressure was about 2,660 pounds.

While the cement was hardening the Otis square Kelly drilling head pressure control outfit was rigged up at the well. The regular drilling head was removed and in its place a 5,000-pound

...ngthened iron.

The next group of wells to be completed in this extension to the Wilcox zone will be handled with the Otis pressure control method and five of them are being drilled in this week and with their completion much will be learned of this Wilcox sa-

a blowout preventer was placed. Then comes a short section of 9⅝-inch casing and a high pressure oil saver and immediately above the oil saver the Otis square Kelly packer is installed.

TO PRESSURE SUPPLY & RELEASE
OTIS SQUARE KELLY DRILLING HEAD
OTIS PRESSURE OPERATED UNION
TO RELEASE VALVE
TO PRESSURE SUPPLY & RELEASE
PRESSURE OPERATED OIL SAVER

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Making its first real strides in the Oklahoma City field, this method, embodying principally the Otis Square Kelly Drilling Head and Otis Pressure Operated Union, has definitely proven of revolutionary value wherever bottom hole pressure has declined below the hydrostatic pressure exerted by the weight of a heavy mud laden fluid column.

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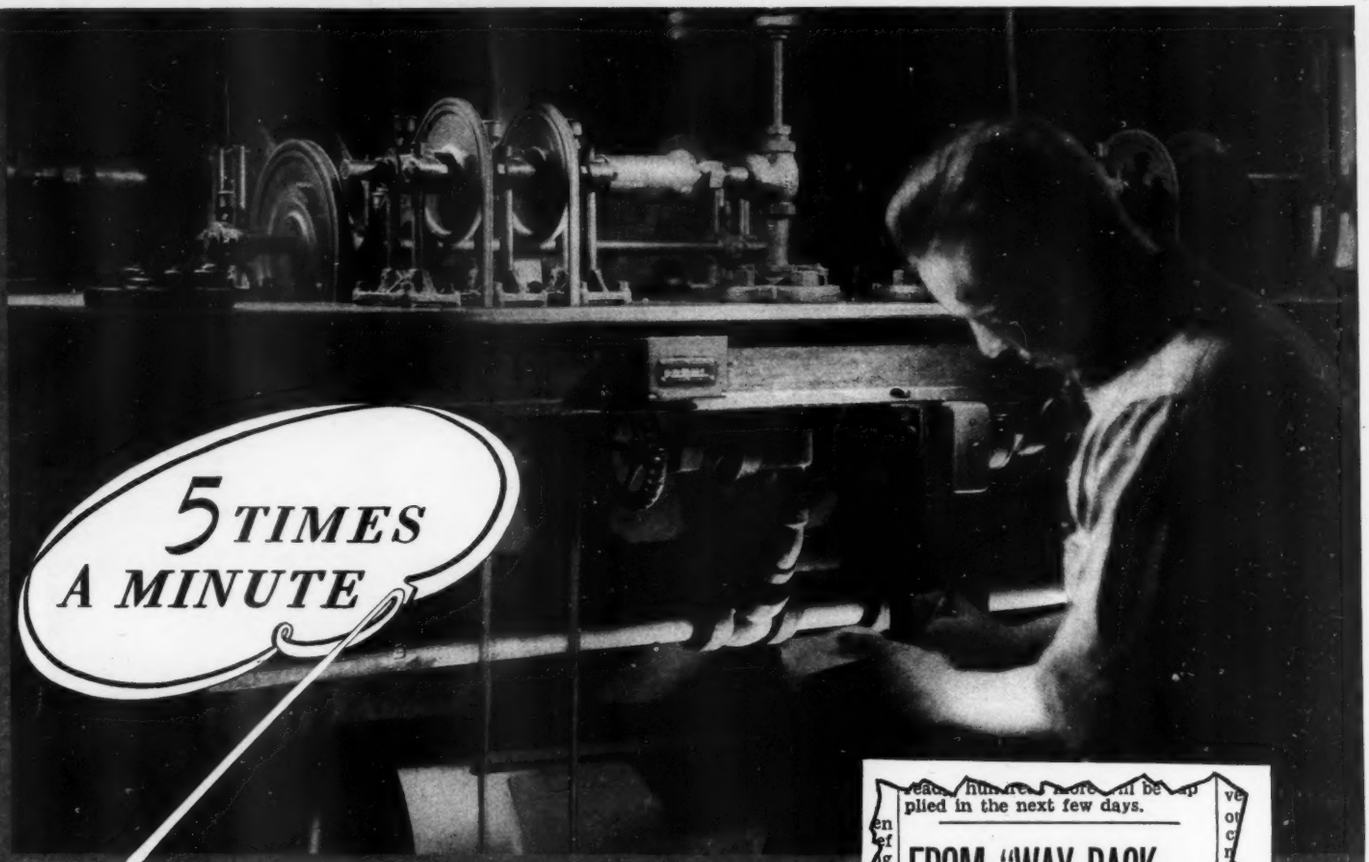

300 Times an Hour

OPEN, shut—open, shut. Ceaselessly, valves are opened and shut in a special "torture machine" at the Crane laboratories. Five times a minute . . . 300 times an hour . . . 2,400 times every eight-hour shift, until the stem gives up its life and the "post-mortem" adds to the vast body of Crane knowledge of valves.

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plied in the next few days.

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Ever since then Crane has been in the midst of the exciting, far-reaching developments of America's most swiftly changing industry. Pioneers of drilling methods, pioneers of pipe line developments and of refinery practices have brought their piping problems to Crane for a sound solution.

Valve designs and valve materials have changed greatly—and swiftly since the early days. Cast iron has given way to steel—and steel in turn, to alloys. Crane has always kept at the forefront of progress—constantly and consistently pointing the way to improvements in valves, fittings and piping as each new step of development was reached.

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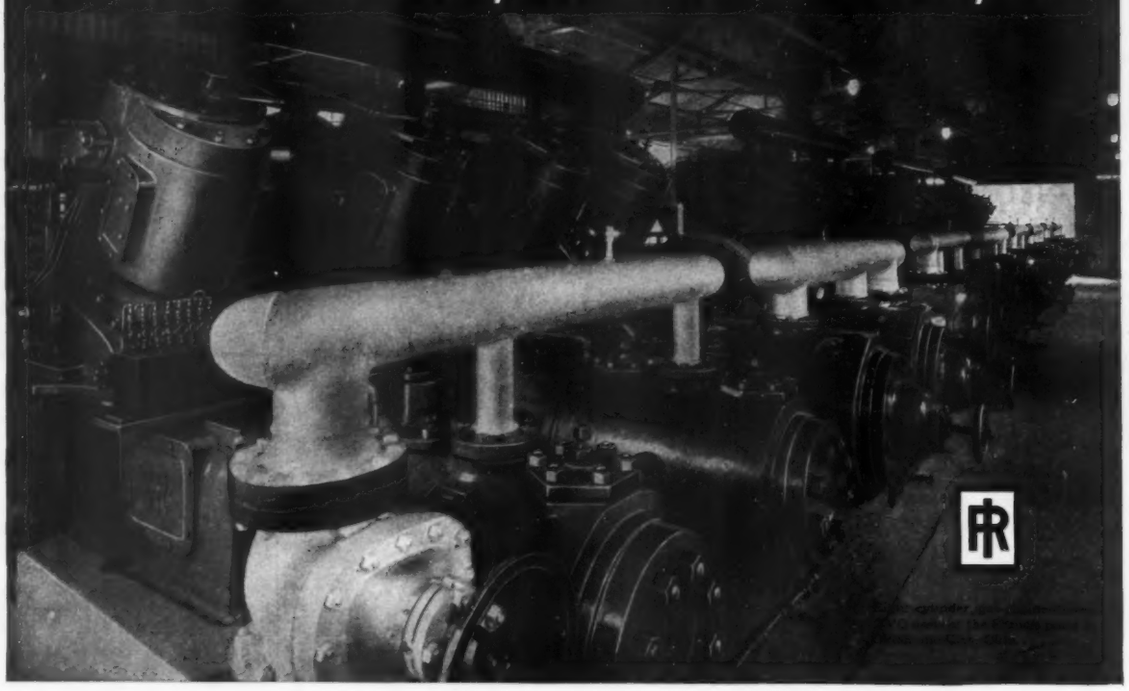

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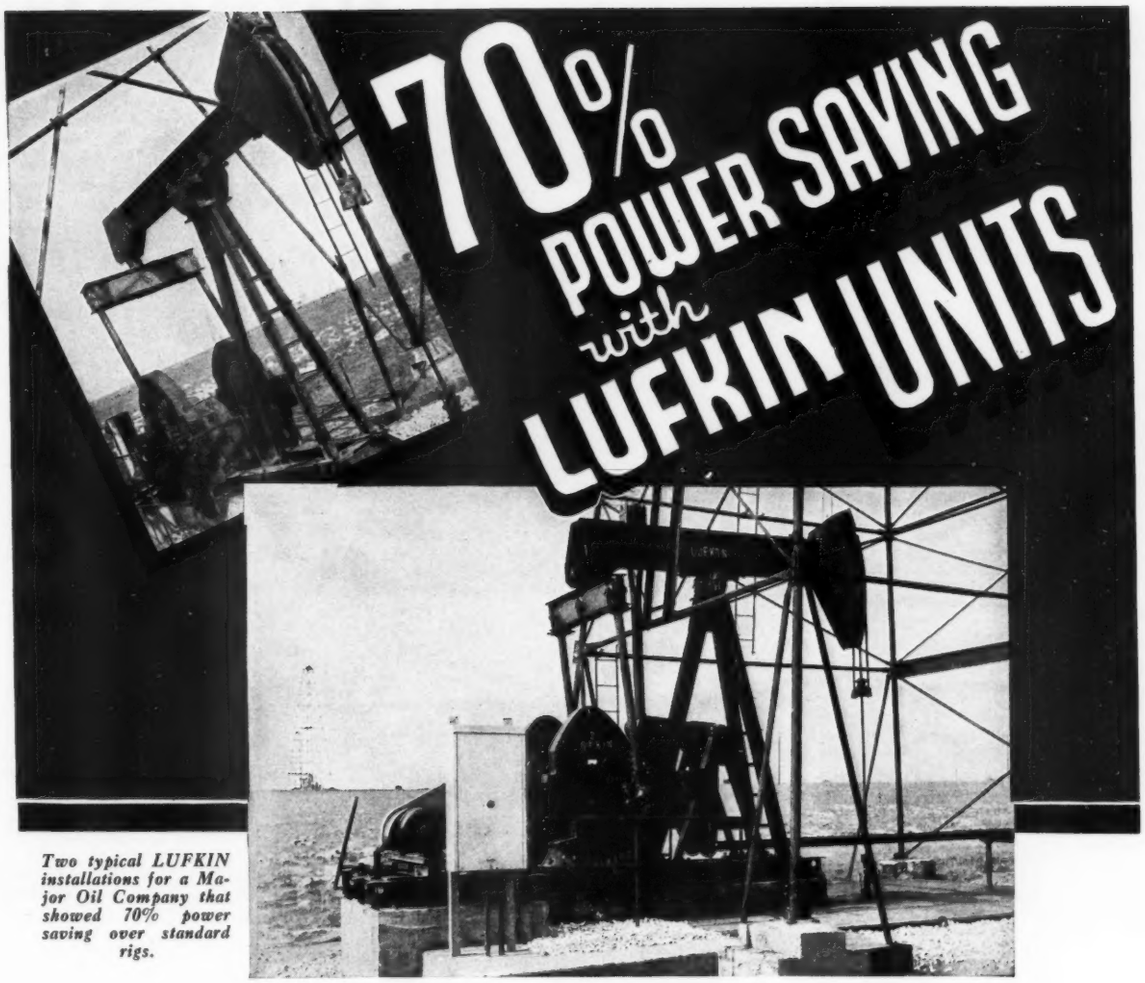

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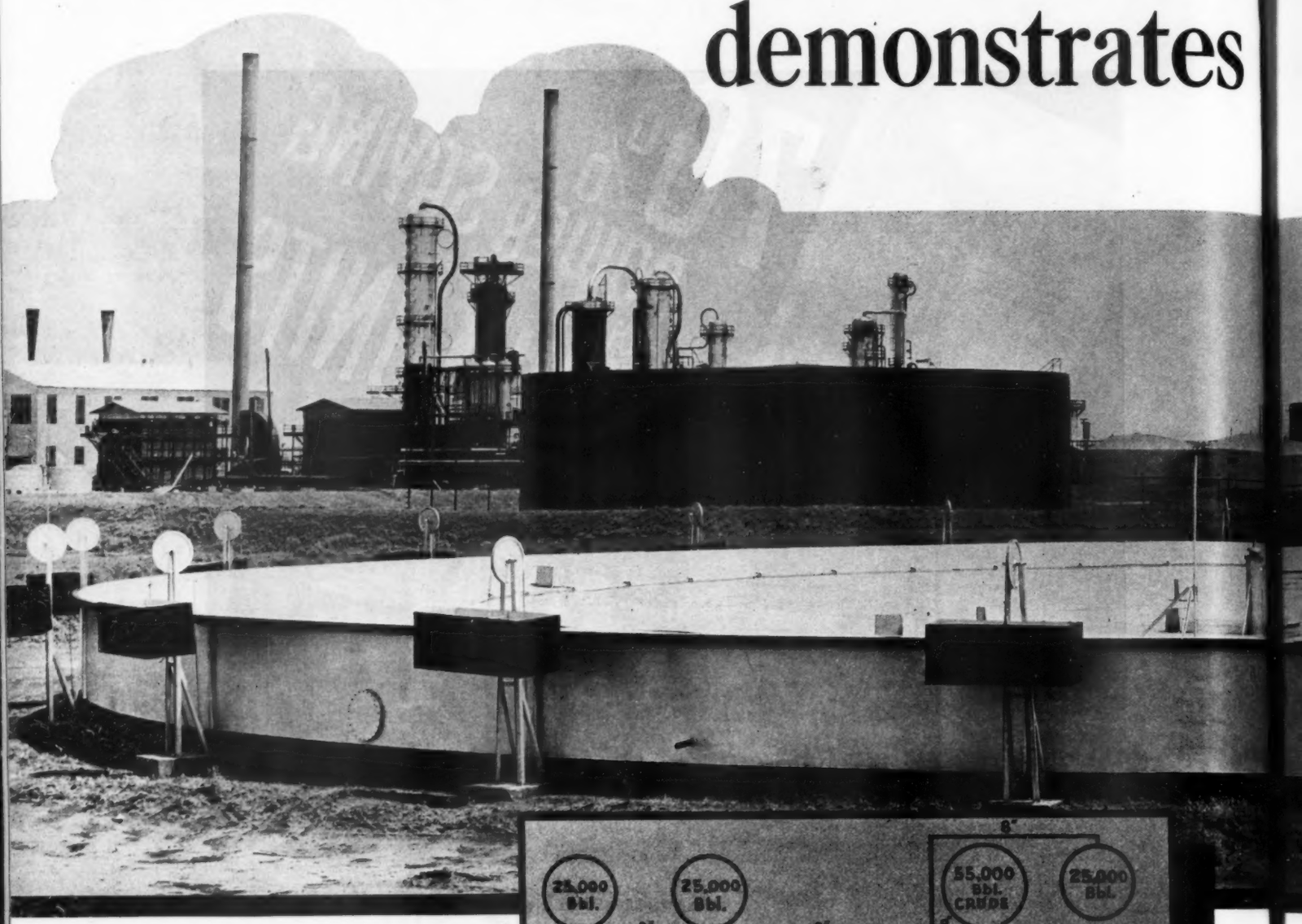
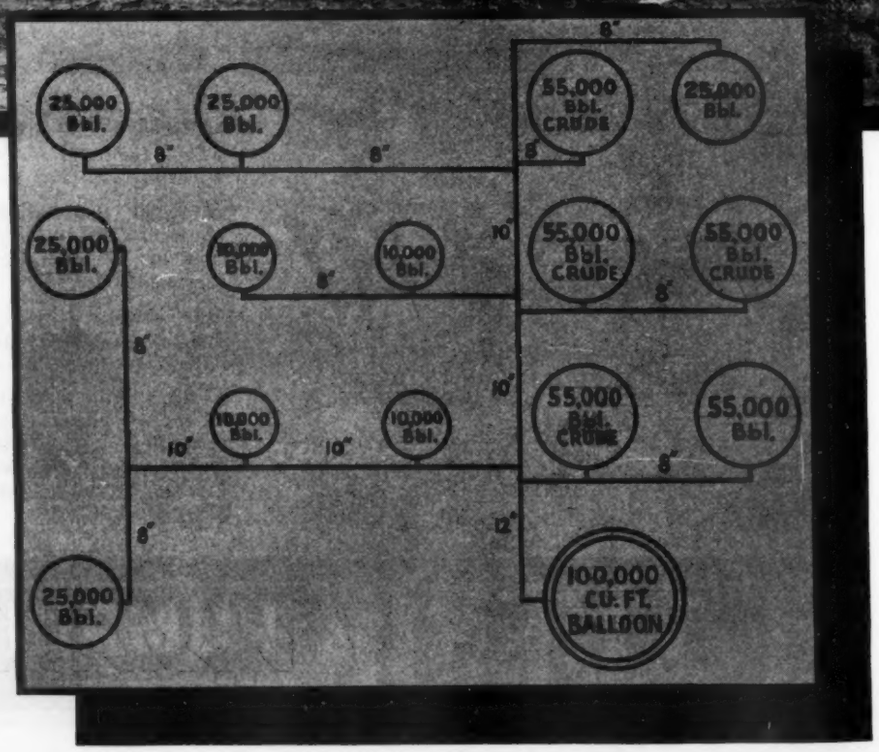
The WIGGINS BALLOON demonstrates





THIS Wiggins Balloon is a 128 ft. dia., 100,000 cu. ft. capacity, unit that has now been in service four years in the McPherson, Kansas, refinery of the Globe Oil and Refining Co. The diagram at the right indicates the location and size of the various units in the system. Tanks not otherwise marked are all finished gasoline tanks, including straight run, cracked, and leaded gasolines.

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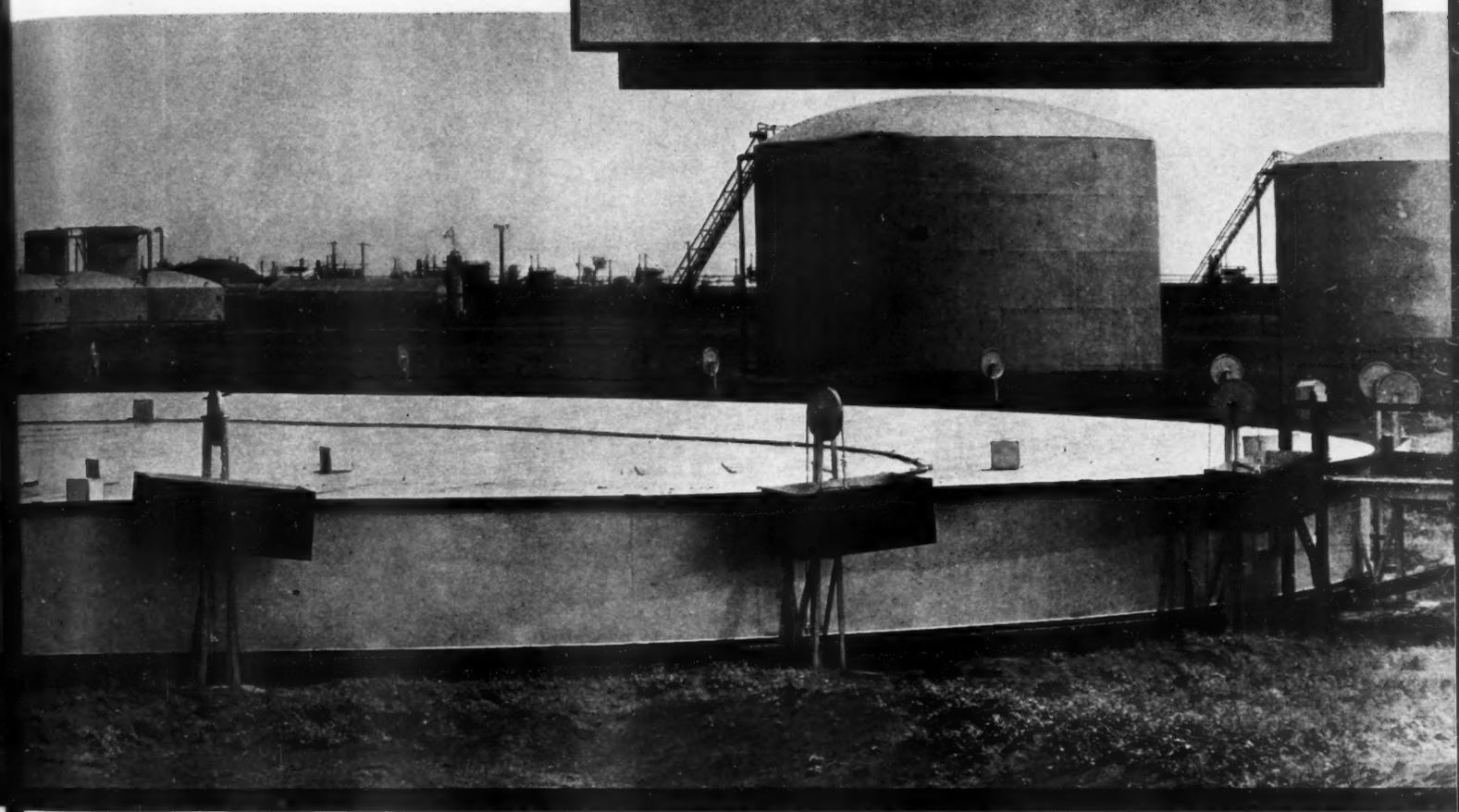
Fabricating Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

that it is: A PRACTICAL UNIT



EACH year the United States Patent Office receives applications for and grants patents on thousands of inventions. Plenty of them are "good ideas" yet only a small percentage ever achieve any commercial success. Why?—Because many of the best ideas are not *practical*.

The Wiggins Balloon is a "good idea" and *IT IS PRACTICAL*. The installation shown in the accompanying picture offers a good example of how the Balloon can be used as the central gas holder for simple, yet efficient, vapor saving systems serving groups of ordinary tanks such as may be found at any refinery, bulk station, tank farm, or pipe line terminal.

This Balloon is a 100,000 cu. ft. unit which was installed in the McPherson, Kansas, refinery of the Globe Oil and Refining Co., four years ago. The diagram shows the network of piping connecting it with the vapor spaces of some fourteen miscellaneous working tanks, all made gas-tight to confine the vapor within the system.

Despite the fact that no more than ordinary effort is made to balance in- and out-pumping, or to otherwise favor the Balloon, Mr. E. J. Mary, Superintendent of the refinery, reports that during the first twenty-four weeks of this year no vapor whatever has been vented by the Balloon and that, even in hottest weather, the Balloon has not vented more than once a week.

* * * *

You can imagine what this conservation of vapor means in dollars and cents by considering your own observations of evaporation losses from ordinary unprotected tanks. For detailed estimating data on how to apply the Wiggins Balloon Vapor Saving System to your tanks, address our nearest office. No obligation.

DALLAS	1441 Liberty Bank Bldg.	CHICAGO	2128 Old Colony Building	PHILADELPHIA	1615-1700 Walnut St. Bldg.
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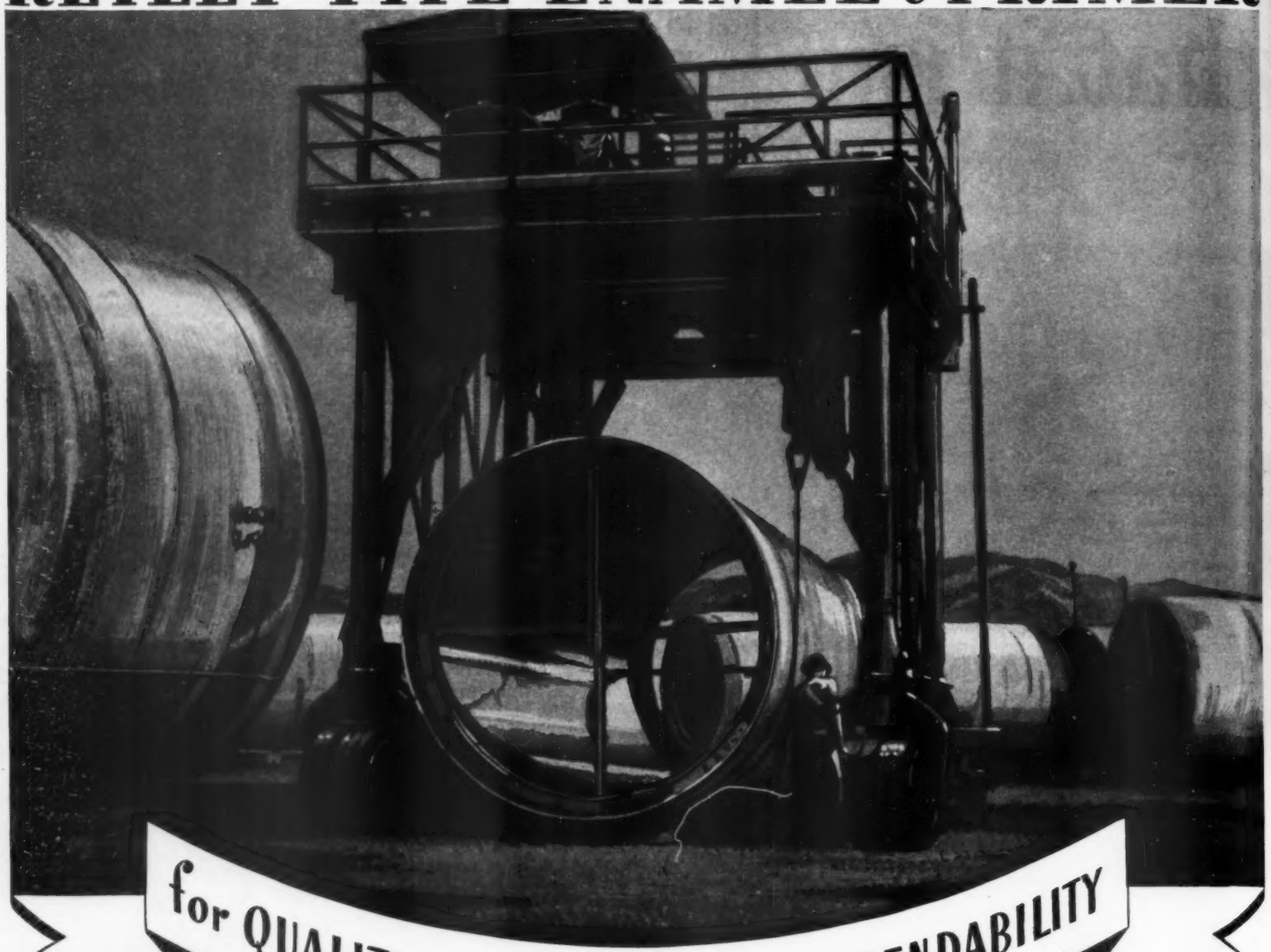
REILLY PIPE ENAMEL & PRIMER



You cannot afford to gamble with pipe enamel . . . it must have the endurance to stand up indefinitely to all of the destructive influences to which a pipe line is subjected. Reilly Pipe Enamel and Primer give maximum protection either as a coating or as a lining. This material possesses those inherent characteristics which assure resistance to rapid and extreme temperature changes . . . without sagging or checking . . . protection against soil acids or alkalies and electrolysis. Properly applied, Reilly Pipe Enamel clings to the steel with a bond unequalled. This material has defied the most rigid tests yet devised . . . and we will welcome the opportunity to demonstrate its merits to you. Your inquiries are always welcome.

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Order Sinclair Ten-ol, Sinclair Diesel fuel and other Sinclair products from your local Sinclair office, or write Sinclair Refining Company (Inc.), 630 Fifth Avenue, New York, N. Y.

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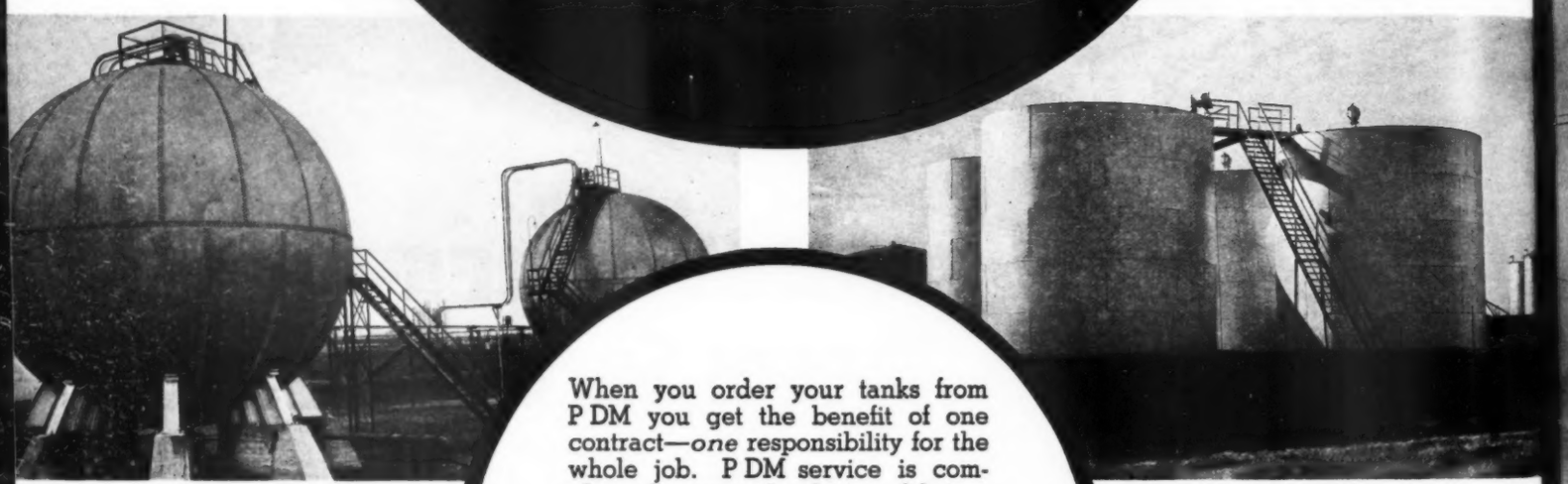

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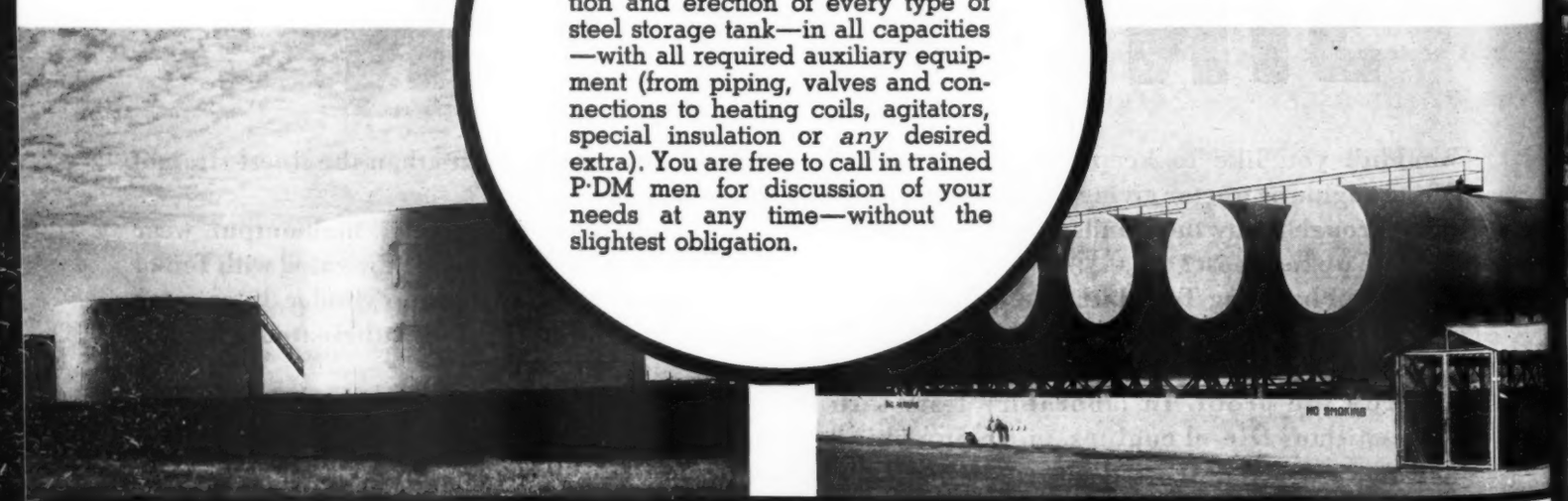

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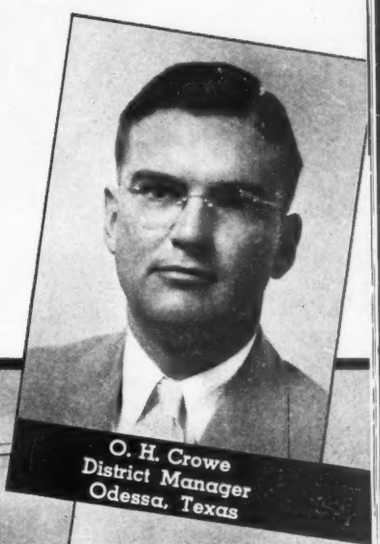
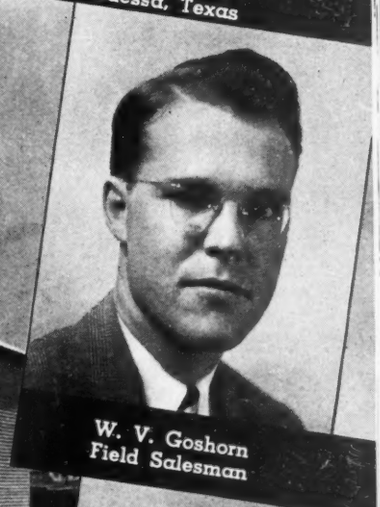
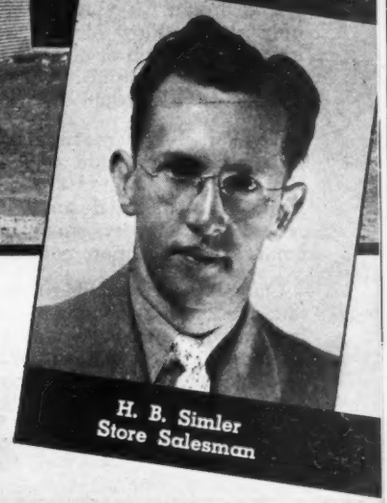


O. H. Crowe
District Manager
Odessa, Texas



W. V. Goshorn
Field Salesman



H. B. Simler
Store Salesman

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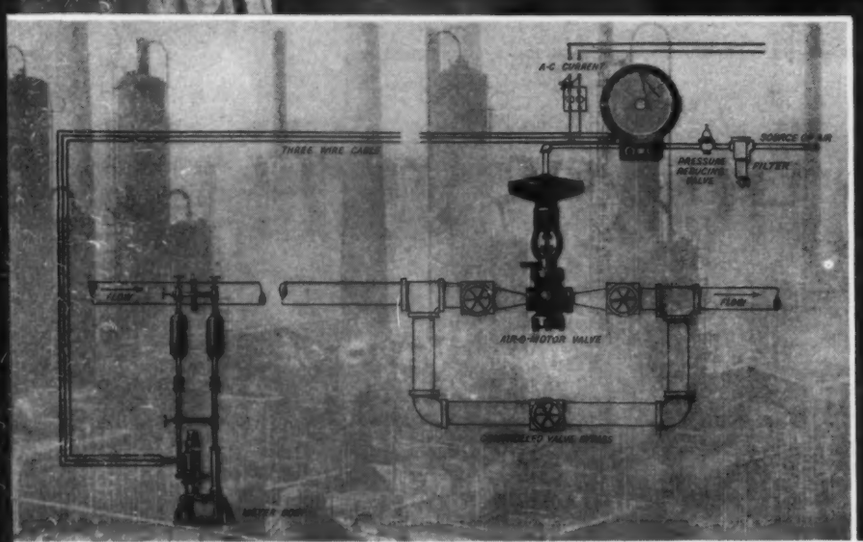
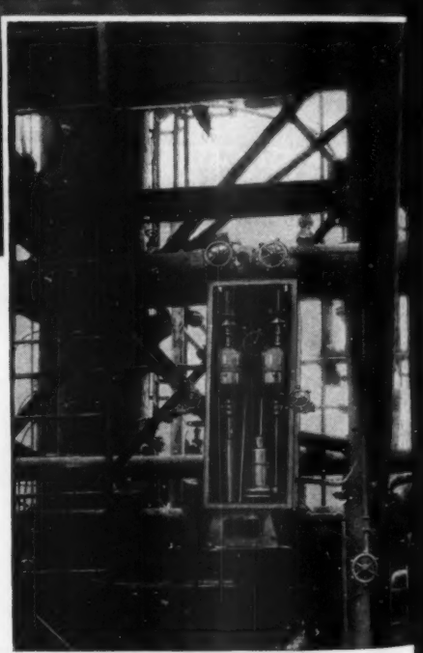
REMOTE CONTROL HOT OIL CHARGE PUMP





THE above pictures tell a dramatic story of engineering achievement. They show how the problem of remote control of the hot oil charge pumps was solved on an experimental unit of the Universal Oil Products Co. Dubbs cracking process.

The Brown Air-o-Line Flow Controller is the only electric Flow Meter that offers the desirable combination of electric recording with air operated control and remote control setting by means of a calibrated control index.

The air control mechanism of Brown Air-o-Line is mounted inside of the recorder case. A turn of the calibrated control index makes it possible to set the desired flow control at the recording controller, which is mounted on the centralized instrument control board.

Only Brown Air-o-Line flow controllers offer this outstanding advantage—which saves time in putting the controller in operation and insures better coordination of flow with the other variables to maintain balanced operation.

Air-o-Line flow controller is suitable for working pressures up to 2500 lbs. per square inch—equipped with the well-known Brown interchangeable range tube features—Air-o-Line flow and liquid level controllers are easily adapted to meet any operating condition.

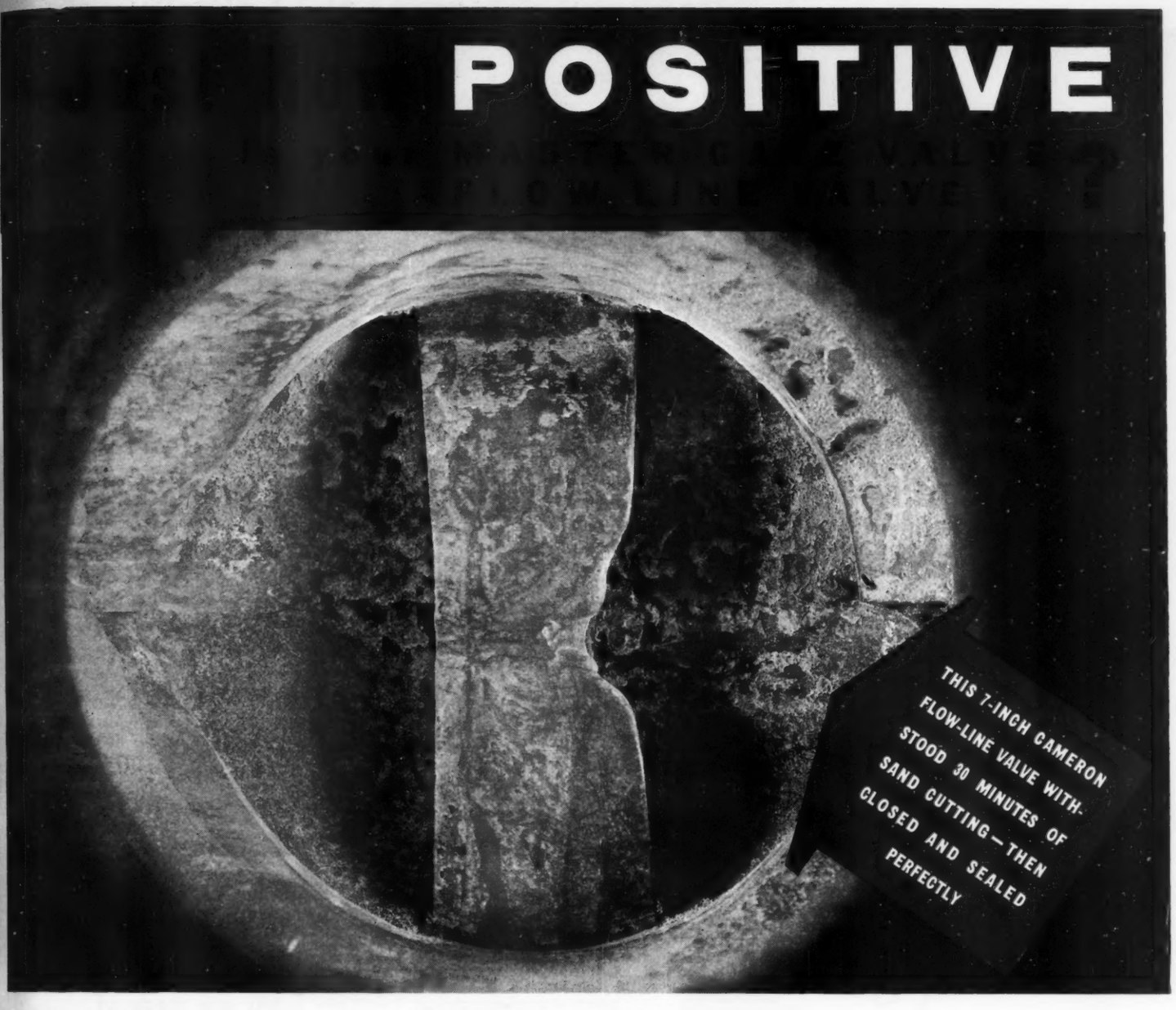
The graduated "throttling range" and "automatic reset" dials make it possible to "tune in" to process control as easily as dialing a radio. All that is necessary is to set the control index—"tune in" throttling range and automatic reset—once adjusted, Air-o-Line becomes fully automatic. Learn more about Brown Air-o-Line Flow Controllers. Write for information. THE BROWN INSTRUMENT, *a division of Minneapolis-Honeywell Regulator Co.*, 4488 Wayne Avenue, Philadelphia, Pa. Offices in all principal cities. Toronto, Canada: 117 Peter Street. Amsterdam-C, Holland: Wijdesteeg 4. London, England: 70 St. Thomas' Street, S.E. 1.

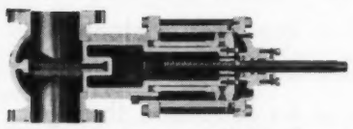
The above photographs show Brown Air-o-Line Flow Controllers mounted at the centralized control board and the meter bodies installed at the remote point of measurement. The schematic diagram shows the principle of electric flow recording by Brown Air-o-Line.

BROWN *Air-o-Line* FLOW CONTROLLERS

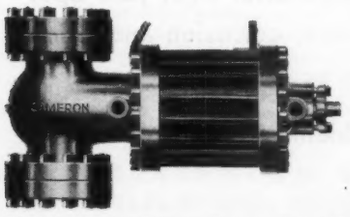
Outstanding Performance With Simplicity

POSITIVE





Cross section view of the Cameron Pressure Operated Gate Valve clearly showing the single seat in the gate cavity and the self-feeding ram-gate packing element which effects a sure, positive closure under any operating condition.



Exterior view of a Cameron Pressure Operated Gate Valve showing the opening and closing ports through which fluid pressure is applied to control the operation of the valve instantly, positively and dependably.

THE UNRETOUCHED PHOTOGRAPH above was taken looking through the ram-gate bore toward the single seat of a 7" Cameron Pressure Operated Gate Valve. This valve was in service on a drilling well in the Gulf Coast area. The photograph shows the results of 30 minutes of sand cutting occasioned by failure to close the valve—for reasons which are not a part of this story. Inspection revealed that part of the seat was cut away and that a ½" deep groove was cut entirely across the remaining section of the seat.

Despite this severe sand cutting, the valve closed instantly and sealed perfectly when fluid closing pressure was applied 30 minutes after the well blew out. The self-feeding packing elements, with which each Cameron Pressure Operated Gate Valve is equipped, instantly fed resilient packing material into the recesses of the damaged seat and effected a leak-proof closure. Undoubtedly the ability of this 7" Cameron Gate Valve to seal off, even though badly sand cut, saved a drilling rig and an almost completed well in this instance.

To operators who do not feel that they could depend upon their present Master Gate or Flow Line Valve for equally positive and dependable performance under adverse conditions, we shall be pleased to forward complete details pertaining to the Cameron Pressure Operated Gate Valve.

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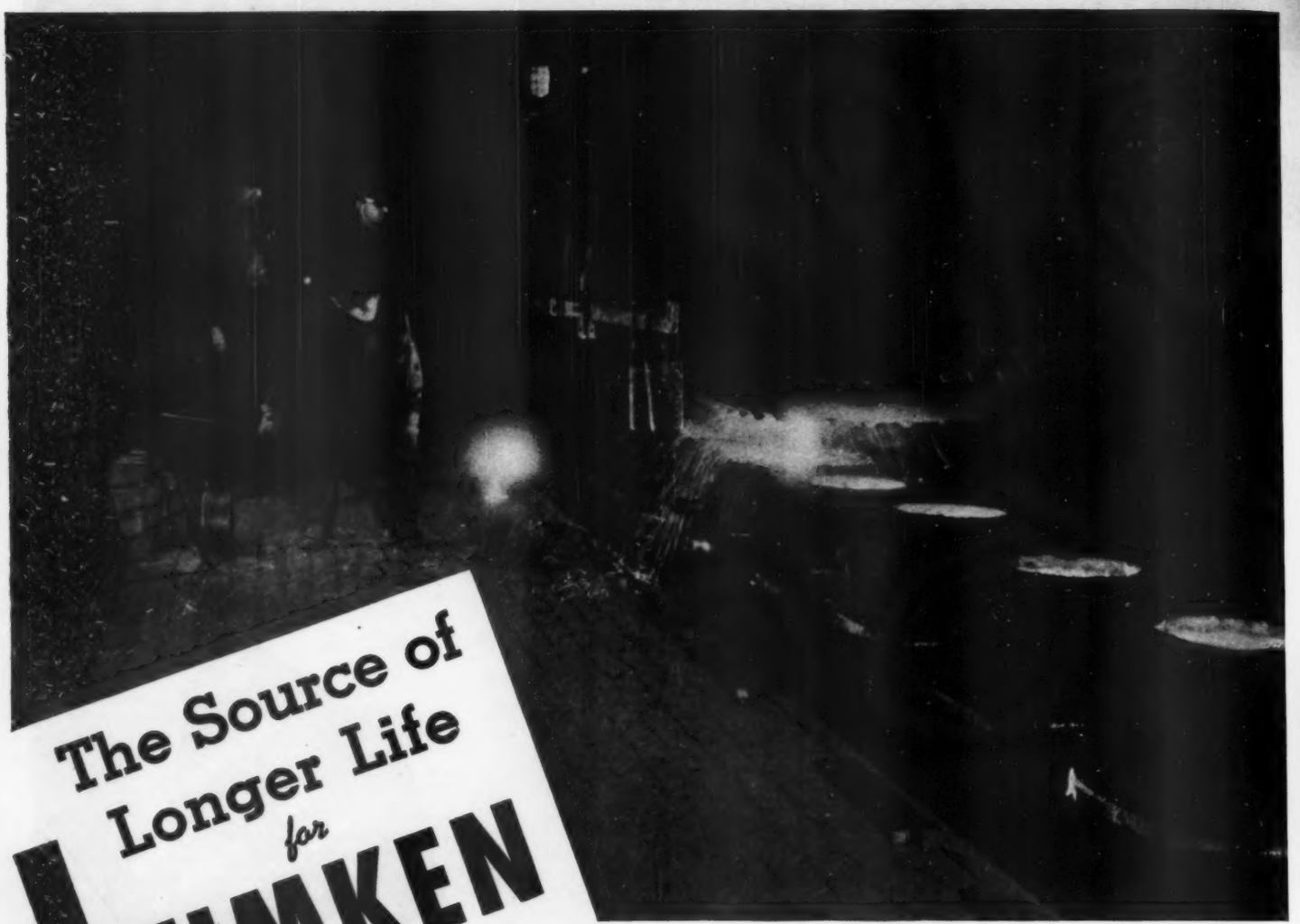

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Front Page News!

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THE leader in all-wheel-drive engineering and manufacturing for many years, Marmon-Herrington today offers the most advanced and most complete all-wheel-drive line ever produced by any manufacturer.

First, there is the Marmon-Herrington all-wheel-drive Ford V-8, now built on the 112-inch wheelbase passenger, light delivery and commercial car chassis as well as on the standard truck chassis. Of exceptional value in exploitation and geophysical work, these light and powerful all-wheel-drive models have been ordered for operation throughout the world. All-wheel-drive Ford V-8 truck models are built to drive through all four or all six wheels.

Second, Marmon-Herrington produces a standard line of four- and six-wheel-drive units with capacities ranging up to 50,000 pounds. Some of these units with semi-trailer and trailer equipment have hauled as much as 60 tons of steel pipe per trip across miles of desert territory.

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Records kept by leading oil producers show that all-wheel-drive vehicles will last longer, require less servicing, provide more hours of crew time than other types of equipment previously in common usage. More and more major oil companies (names on request) are using Marmon-Herrington units, not only for geophysics surveying but for developing new fields, for pipe-hauling and pipe-stringing and, in short, for every branch of oil production and distribution where transportation is an important factor.

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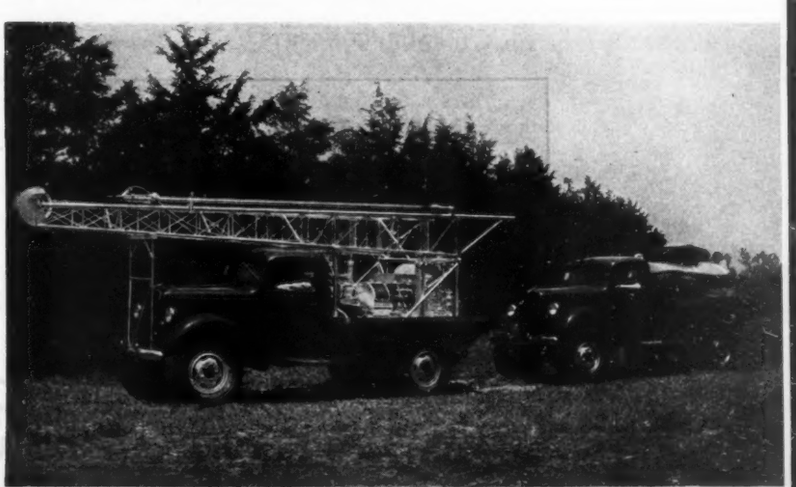

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The ISCO Pumping Unit is designed to lower installation and operating costs with the capacity, strength and flexibility to meet the most difficult conditions. Its easy portability, quick installation and economical operation insures new records in performance and recovery. Available in sizes and capacities to meet your specific requirements.

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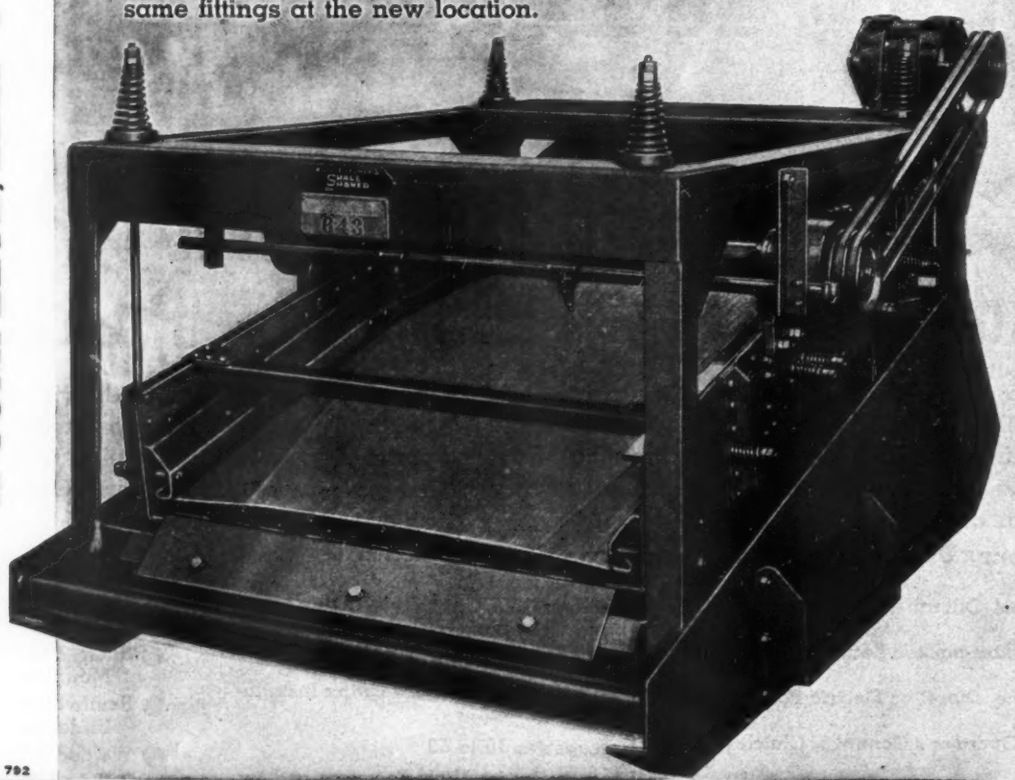

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See the Rex man or write for further information on the Rex Oil Well Chains. Main office address: 1619 W. Bruce Street, Milwaukee, Wis.

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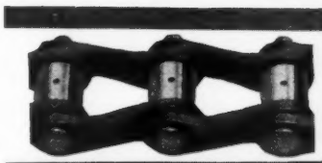
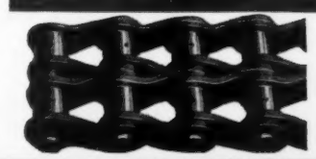


REX DEEPWELL CHAIN

REX CHAMPION CHAIN



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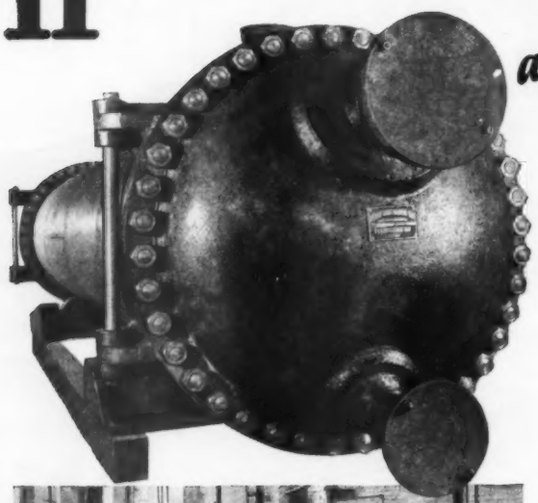
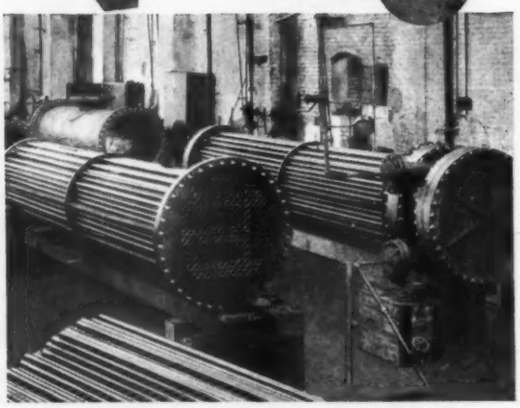
REX DEEPWELL DW-3—DW-4 • REX CHABELCO 1033—1244

HEAT EXCHANGERS *for* HIGH PRESSURES *and* HIGH TEMPERATURES *by* Vogt



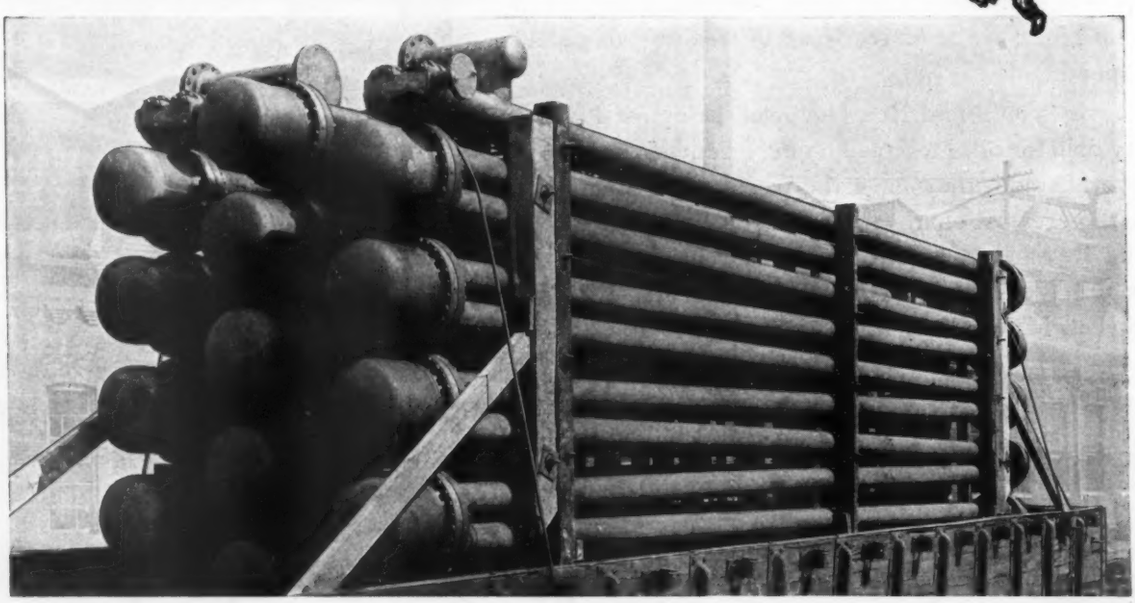


Here are three types of exchangers that operate under similar high pressures and high temperatures but under widely varying service conditions in three different refineries. All are original designs by Vogt engineers and have satisfactorily met the service conditions specified by the customer.

We shall be glad to quote on your heat exchange problems.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KY.

BRANCH OFFICES:—NEW YORK • PHILADELPHIA • CLEVELAND • CHICAGO • KANSAS CITY • DALLAS



Photograph by Robert Yarnall Richie

No. 20 of a Series on
Mission Shop Practices

Photograph shows Chief Shipping Clerk examining crating of Mission valve bodies for domestic shipment.

Foreground: Carefully packed individual containers with sizes and directions printed on the outside.

Careful CRATING AND PACKING OF MISSION PRODUCTS

★ ★ ★ Assure their reaching the buyer in perfect condition and always in the sizes ordered.

A CONVENIENCE THAT OFTEN SAVES SHUT-DOWN TIME

MISSION MANUFACTURING CO.

HUMBLE ROAD . . . . . HOUSTON, TEXAS

Mission Slips . Mission Valves . Mission Pistons . Mission Piston Rods Mission Swabs

Sold Through Supply Stores Everywhere

NAPHTHAS · FUEL OILS · DIESEL FUELS

KEROSENE · GASOLINE · INDUSTRIAL

AUTOMOBILE LUBRICANTS

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Nine strategically located **SHELL** *Refineries*

CALIFORNIA

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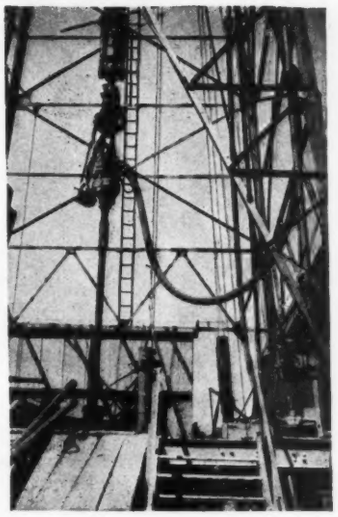
GULF COAST

HOUSTON, TEXAS; NORCO, LA.

MID-CONTINENT

EAST CHICAGO, IND.; WOOD RIVER, ILL.; ARKANSAS CITY, KANSAS

DEPENDABLE
all the way down
MANHATTAN
Rotary Hose



Manhattan Rotary Hose in the Rodessa Field drilling a 10,000-foot test. The close-up shows a 50-foot length of Enlarged End Grenadier Rotary Hose, operated under pressures from 1050 to 1200 lbs. with occasional high surges with the temperature of the mud at 128° F. . . . The stand-by hose, shown in the background, is a 50-foot length of Enlarged End Super-Dreadnaught Rotary Hose.

U. S. PATENT No. 2,033,559—2,047,770

As the rotary drill goes down, pumping pressures and abrasive wear go up . . . but veteran drillers have learned from experience that regardless of how far the drill goes down, Manhattan Super-Dreadnaught Rotary Hose stands up.

Made with both plain and enlarged-ends, or full flow opening, for drilling in with mud or oil,* Super-Dreadnaught Rotary Hose is made of duck, rubber and metal for strength, flexibility and wear. Bonded and armored in long pitch spirals, it resists high pressures, surges, stretch, attenuation and abrasion.

Enlarged or Full-Flow Ends permit unrestricted mud flow and velocity throughout the hose. Because the inner diameter of the nipple is the same as that of the hose, there is no constriction to reduce the flow of fluid or require increased pump pressure. No sharp edges are worn on the inside edge of the nipple to cut the inner rubber tube.

*G. O. P. Oil-Proof Construction. In some localities, drilling-in with oil presents new problems in Rotary Hose construction. There is a tendency for rubber to swell and soften. For circulating oil, Manhattan has developed the G. O. P. Oil-Proof Tube, a synthetic material possessing the qualities of rubber yet unaffected by oil. This tube is recommended for oil conditions. The oil-resisting rubber tube of regular Manhattan Rotary Hose will withstand occasional circulation of oil for short periods, but i s life will not be as long as G. O. P. hose.

OTHER MANHATTAN ROTARY HOSE

Dreadnaught — A lighter hose of similar construction for hard drilling. Available with Enlarged or Plain Ends and G. O. P. Oil-Proof or rubber oil-resisting tube.

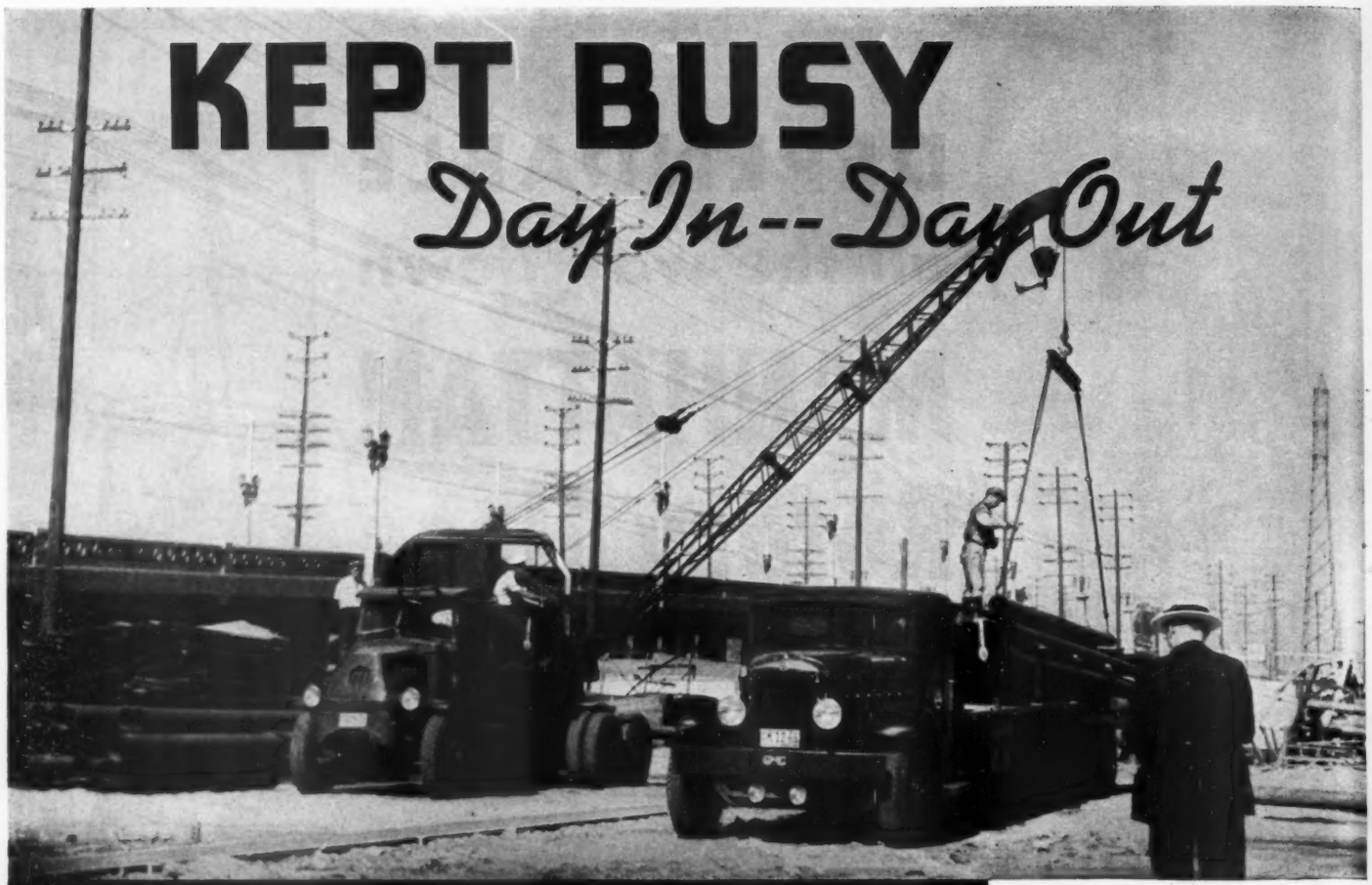
Grenadier—Has 3 bead wire spirals for exceptionally severe drilling service and rough handling. Available with Enlarged or Plain Ends and G. O. P. Oil-Proof or rubber oil-resisting tube.

Distributed by The National Supply Company . . . in all important oil producing centers

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES and FACTORIES, 70 TOWNSEND ST., PASSAIC, N. J.

KEPT BUSY
Day In--Day Out

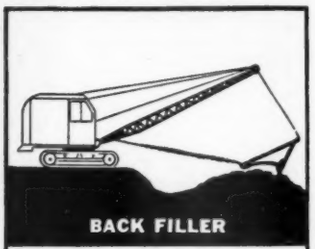


P&H BANTAM WEIGHT
FOR OIL FIELD AND PIPE LINE JOBS

It's built for speed, this little husky, with so many different uses that it's constantly on the go — finishing one job and starting another with mighty little time lost between them. From loading pipe it goes to laying pipe — to digging basements and slush pits — to pile driving or back filling. Once in the oil fields, the Bantam Weight doesn't get a rest — and doesn't need it!

It's fully convertible . . . shovel, crane, dragline, pile driver, back filler or trench hoe attachments are made of alloy steels — so simply set up that it's practical to change from one service to another right in the field. The Ford V-8 motor gives it all the power you'll ever need at the lowest operating and maintenance cost ever known in a unit of this kind. Mounted on a truck chassis or on its own tractor-type crawlers, the Bantam Weight's a high speed machine with high earning ability. Write for full information.

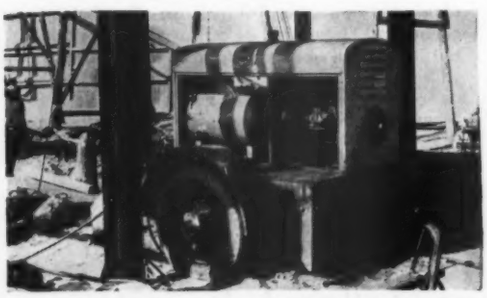
CONVERTIBLE FOR ALL TYPES OF SERVICE



BACK FILLER

TRUCK CRANE

SHOVEL



"SMOOTHARC" P&H HANSEN WELDERS FOR MAINTENANCE WORK

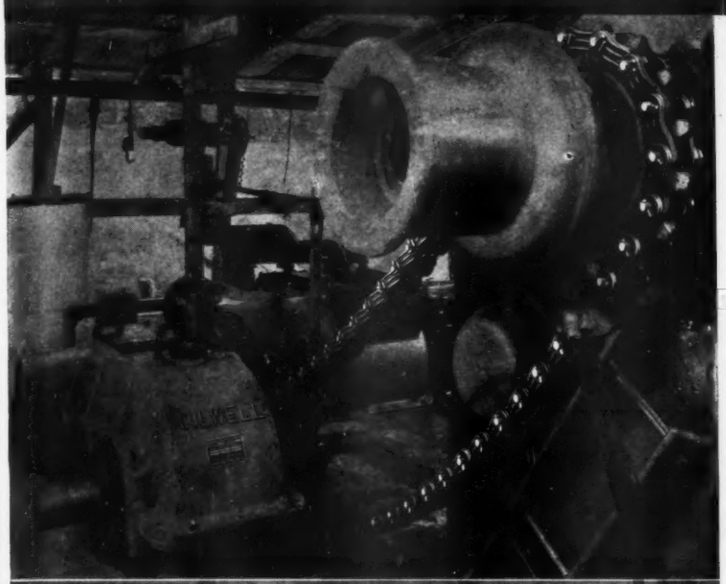
Makes arc welding much simpler. One easy adjustment gives you current control over the entire welding range with a steady arc for better welding results. 150-amperes gives you the capacity for a wide range of work. It's powered by a small, air-cooled, direct-connected gas engine, remarkably efficient. It's mounted on a two-wheel automotive-type trailer with cantilever springs and balloon tires; amply protected against road shocks. Write Harnischfeger Corporation. 4527 W. National Ave., Milwaukee, Wisconsin

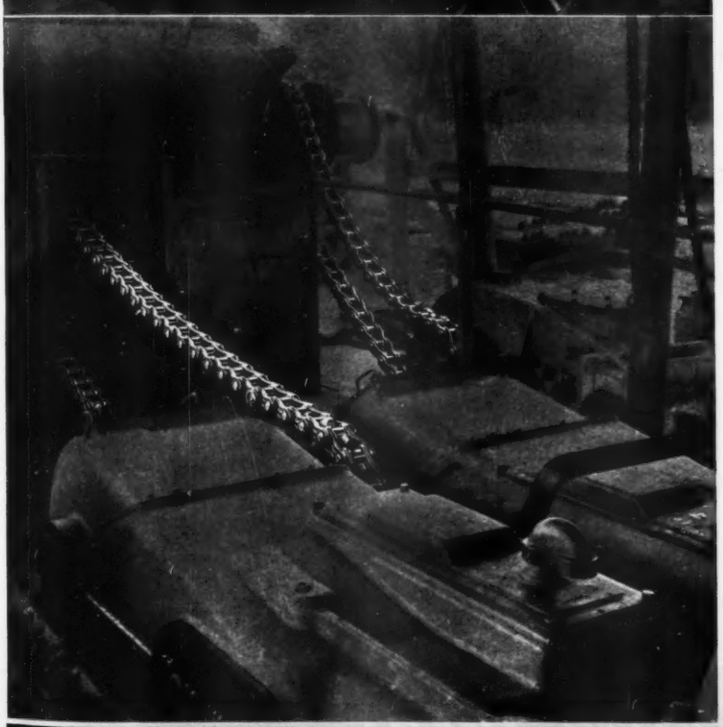
Warehouses and Service Stations: Hoboken — Memphis
Jacksonville — Dallas — Seattle — Los Angeles — San Francisco

HARNISCHFEGER
CORPORATION

EXCAVATORS * ELECTRIC CRANES — FOUNDED IN 1884 — QUALITY P&H SERVICE — OF HARNISCHFEGER & POWLING — HOISTS * MOTORS * ARC WELDERS

THEY ASK FOR HYPER
and get the Best in Chain Performance





● Pictured here are two derrick floor views of a deep Oklahoma location where the going is anything but easy. When the tool pusher specified Link-Belt HYPER Chains on the rig, he was talking the language of all three drillers on the job.

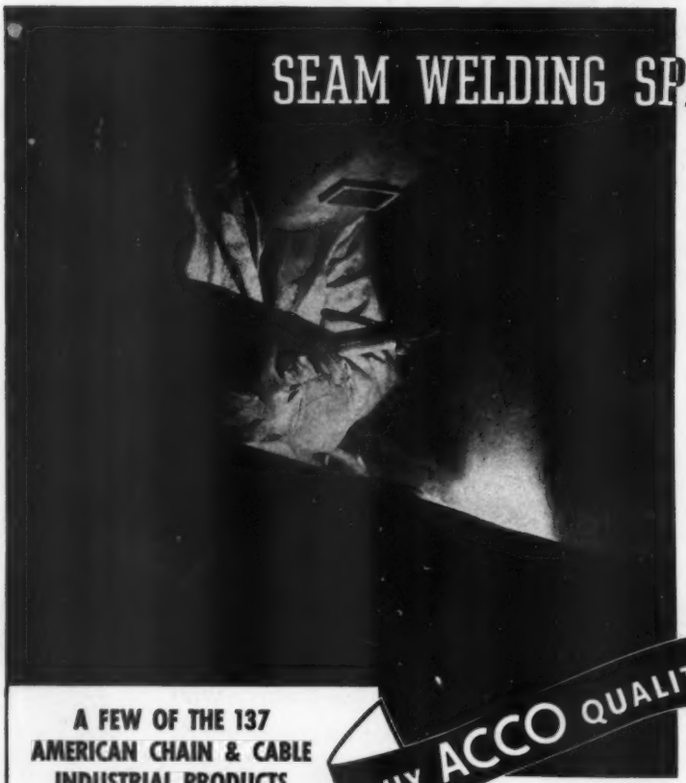
Men who use chain . . . who see it in actual performance day after day . . . who have the opportunity to make fair comparisons . . . these are the men who ask for Link-Belt Chain and get it . . . and these are the men who get the best in chain performance.

There is a Link-Belt Chain for every drilling service regardless of depth or type of formation. They are sold by most supply houses.

●

LINK-BELT COMPANY
Indianapolis, Philadelphia, Chicago, Los Angeles, New York, Houston, Dallas, Oklahoma City (W. H. Abele, Box 305, Route 4). 7087

LINK-BELT CHAINS



PAGE

Hi·Tensile "F"

SHIELDED ARC WELDING ELECTRODES

•

BUY ACCO QUALITY

A FEW OF THE 137 AMERICAN CHAIN & CABLE INDUSTRIAL PRODUCTS

AMERICAN CHAIN DIVISION
(DOMINION CHAIN COMPANY, Ltd., in Canada)
Weed Tire Chains • Welded and Weldless Chain • Malleable Castings • Railroad Specialties

AMERICAN CABLE DIVISION
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FORD CHAIN BLOCK DIVISION
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HIGHLAND IRON & STEEL DIVISION
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MANLEY MANUFACTURING DIVISION
Automotive Service Station Equipment

OWEN SILENT SPRING COMPANY, Inc.
Owen Cushion and Mattress Spring Centers

PAGE STEEL AND WIRE DIVISION
Page Fence • Wire and Rod Products Traffic Tape • Welding Wire

READING-PRATT & CADY DIVISION
Valves • Electric Steel Fittings

READING STEEL CASTING DIVISION
(OF READING-PRATT & CADY DIVISION)
Electric Steel Castings, Rough or Machined

WRIGHT MANUFACTURING DIVISION
Chain Hoists • Electric Hoists and Cranes

ACCO

A low slag loss, all purpose electrode

Recently introduced, the new Page Hi-Tensile "F" is winning favor as an all purpose rod—equally good on production, maintenance or shop welding. It is especially effective for high speed single pass welding and for work where the set-up is poor.

Though the Hi-Tensile "F" rod does not have a tensile strength equal to Hi-Tensile "C", it has certain advantages—it operates on straight polarity, has unusually low spatter and slag loss, and satisfactorily welds the new low alloy steels such as Cromansil, Corten and H-T-50.

Complete information regarding the technical characteristics of the new Page Hi-Tensile "F" Shielded Arc Welding Electrode will be sent upon request.

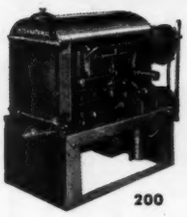
PAGE STEEL AND WIRE DIVISION
MONESSEN, PENNSYLVANIA
AMERICAN CHAIN & CABLE COMPANY, Inc.
In Business for Your Safety

PAGE *Welding* WIRE

INTERNATIONAL ENGINES

Cut Pumping Costs

P-12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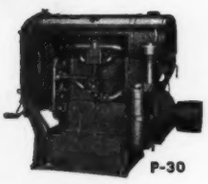
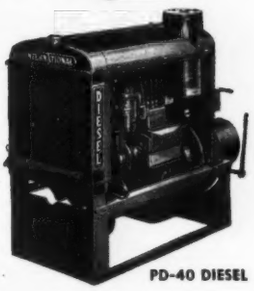

P-30

300


PD-40 DIESEL

PA-40

● These engines are the product of International Harvester, *world's largest tractor builder,* and are backed by this Company's world-wide reputation for *quality* and *after-sale service.* They have seen action in almost every conceivable kind of work and condition throughout the world—thoroughly tried and tested from every standpoint for the gruelling work of powering oil-well pumps.

The *sound engineering* of every detail in International Engines shows up to particular advantage in pumping work. In field after field they have proved their ability to provide a *smooth flow of dependable power* twenty-four hours a day for month after month and year after year.

The *economy* of International Engines is readily apparent in the cost records of their users. And this goes for *economy of maintenance* as well as of operation. They are built to be serviced *fast, easily,* and at *low cost.* And no matter where they work, factory-standard service is always nearby.

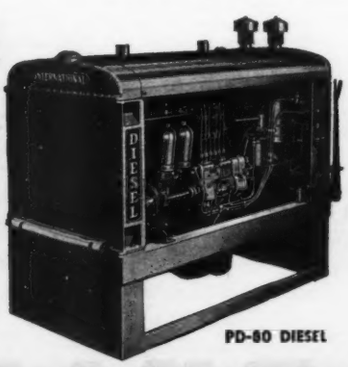
Brief Specifications
INTERNATIONAL POWER UNITS

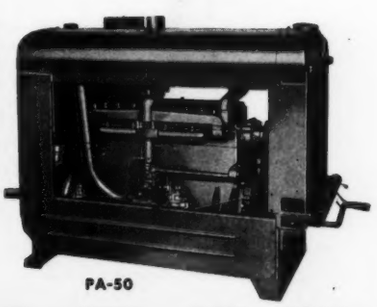
Model	No. Cylinders	Max. Horsepower	Cont. Load Horsepower—80% of Max. H. P.	R. P. M.
P-12	4	22.5	18	1400 to 2000
200	4	33.5	26.8	1000
P-30	4	40	32	1150
300	4	52.5	42	1050
PA-40	6	59.5	47.6	1400 to 1800
PD-40 Diesel	4	62.5	50	1250
PA-50	6	66.5	53.2	1400 to 1800
PD-80 Diesel	6	100	80	1400
PA-100	6	110	88	1400

The International line ranges up to 110 max. h. p. It includes 4 and 6-cylinder engines for gasoline, kerosene, distillate, or natural gas, and 4 and 6-cylinder Diesel engines. They are available in compact power units as shown here; in International Industrial Tractors (wheel and crawler types); and as the power for a variety of equipment built around them. See the nearby industrial power dealer or Company-owned branch for complete information.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
Harvester Building, Chicago, Illinois

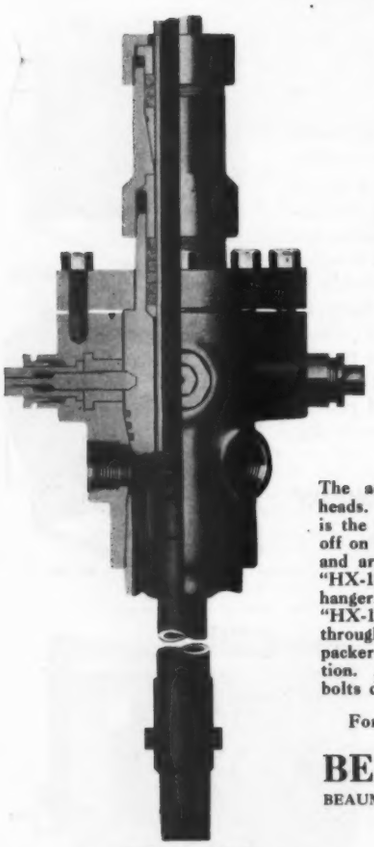
PA-100


PD-80 DIESEL


PA-50

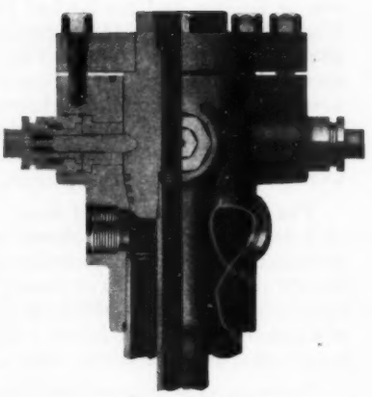
INTERNATIONAL Industrial Power

DREADNAUGHT TUBING HEADS



TYPE "HX-1075"

- ✓ Permit completion of high pressure wells without killing them with heavy mud.
- ✓ Type "HX-1075" permits setting packer and landing tubing simultaneously.
- ✓ Facilitate re-working well under pressure without killing it.
- ✓ T-segment bolts lock tubing hanger in place and permit removal of ALL blowout preventer equipment.
- ✓ 6,000-lb. test pressure . . . . . alloy steel.



TYPE "HX-1070"

The accompanying sectional drawings clearly illustrate the mechanism of these heads. The T-segment bolt principle of locking the hanger in the body of the head is the same in both types, i. e., the T-segment bolts are backed out until they seal off on a bronze seat recessed in the thrust bolts while tubing is being run and landed, and are then screwed into a slot in the hanger to seal in the well. In the type "HX-1070", the last joint of tubing is cut to desired length and screwed into the hanger, which passes through the blowout preventer equipment. In the type "HX-1075", the entire hanger assembly is made up on the last joint of tubing, landed through blowout preventer equipment, and after the J-tool has been released to set packer the tubing string is supported by slips as shown in the accompanying illustration. After blowout preventer equipment has been stripped off, a split lap-joint ring bolts down over a lip on top of the hanger.

For complete specifications, write for a copy of Bulletin N-1.

BEAUMONT IRON WORKS COMPANY

BEAUMONT HOUSTON DALLAS LONGVIEW ODESSA, TEXAS
TULSA, OKLAHOMA

"Selling Through Frick-Reid Stores Everywhere"

BEAUMONT

Seismograph Crews

with a long record of efficient field operations and successful interpretations offered for contract work anywhere

INDEPENDENT EXPLORATION COMPANY

ESPERSON BLDG. HOUSTON, TEXAS

Williamsport

"Form-Set"

gives you longer service

— *that's been proven*

The proof of a rotary drilling line's efficiency is in the punishment it can take. Williamsport's *Pre*formed "Form-Set" wire lines have unquestionably proven their ability to stand up under the severest strains of rotary drilling operations.

Williamsport wire lines are as old as the oil industry. In fact, the first Willimsport cable was developed long before wire lines were generally used in oil drilling . . . . nearly half a century ago.

Since then, Williamsport has kept pace with new developments and new improvements. Today, for Rotary Drilling, "Form-Set" wire lines stand head and shoulders above the ordinary wire lines. Their ability to withstand wear, corrosion and fatigue is well-known to most oil men.

There is a Williamsport service engineer and Williamsport stock in the field near you. *Use both!*

WILLIAMSPORT PURPLE STRAND

WILLIAMSPORT WIRE ROPE CO.

WILLIAMSPORT, PA. » » » 122 S. MICHIGAN AVE., CHICAGO, ILL.

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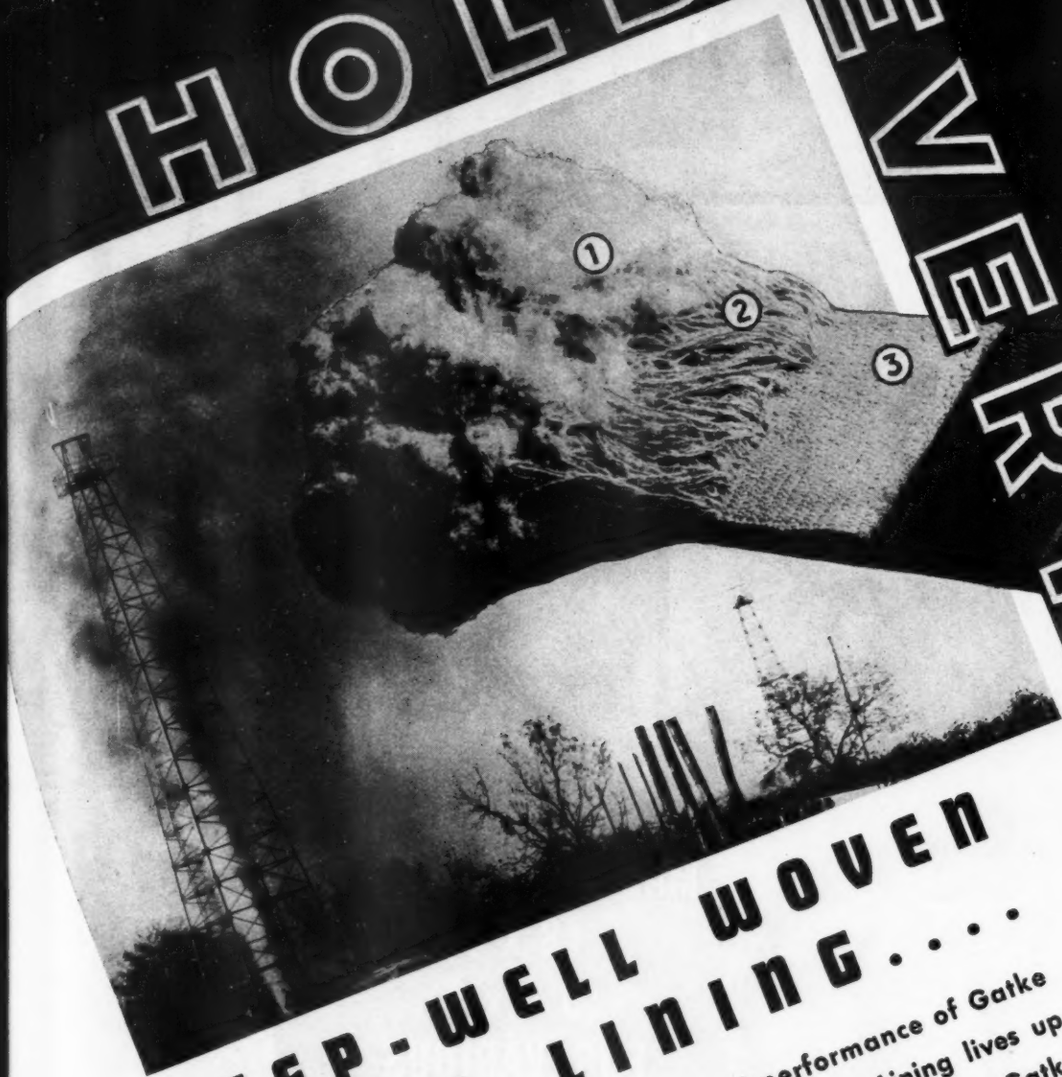
Oil Country Sales Offices: Williamsport Bldg., Fourth and Midland Valley Tracks, Tulsa, Okla.; 10 North Milby Street, Houston, Texas. Mid-Continent Supply Co., Distributors in Texas, Louisiana and Arkansas. General Machine & Tool Company, Distributors in Kansas. American Pipe and Supply Company, Distributors in the Rocky Mountain Territory.

HOLD EVERYTHING!



DEEP-WELL WOVEN BRAKE LINING....

1. The purest asbestos spinning fibre from which every particle of abrasive rock dust has been removed by a special GATKE process.
2. Yarn of this abrasiveless asbestos fibre is twisted with soft zinc alloy wires.
3. Interwoven in one thickness.
4. Saturated with special high-heat-resisting frictional compound.
5. Baked, calendered and hydraulically compressed.
6. Surface ground (one side).

THE unsurpassed performance of Gatke Deep-Well Woven Brake Lining lives up to the Gatke reputation for quality. Gatke engineers developed it especially for the brutal, shock-load demands of draw rig service. It has amazing holding power with a steady release on any load demand. Resistance to wear is unequalled, with no tendency to score on the flanges. No layers to strip, water and oil-proof. Its long life assures important economies in maintenance.

GATKE CORPORATION

228 N. LaSalle Street

Chicago, Illinois

OTHER GATKE PRODUCTS

Moulded Brake and Friction Blocks • Folded and Compressed Asbestos Brake Lining • Non-Metallic Bearings • Asbestos Gaskets and Packings • Silent Timing Gears • Clutch Facings • Heavy Duty Automotive Brake Blocks and Linings.

GARDNER-DENVER

DRILLING ENGINES OFFER MANY ADVANTAGES!

MADE IN TWO SIZES
(8 x 8)
(9½ x 8)
FOR VARIOUS STEAM PRESSURES

Gardner-Denver 12x12 Roller-Bearing Steam Drilling Engine

They are especially designed for rotary direct drilling and power pump drives. Low steam consumption — less space — piston-type steam valves with adjustable cut-off . . . automatic dump valves . . . roller main bearings . . . metallic packing prevents crankcase dilution.

Write for Bulletin DEU-10

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Quincy *Since 1859* Illinois
DALLAS HOUSTON KILGORE
TULSA LOS ANGELES

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GARDNER-DENVER

STANDARD
SEAMLESS
The One Best Pipe For Every Job

★

DRILL PIPE
Regular and Special Alloy

★

CASING
Standard, "Simancro" and "Extreme Line"

★

LINE PIPE

★

TUBING
Regular and Upset

★

STILL TUBES
Low Carbon, Low Chrome, Chrome Molybdenum & other Alloys

★

All Sizes 14" o.d. and smaller

Products of the Oldest Operating Pipe Mill in America

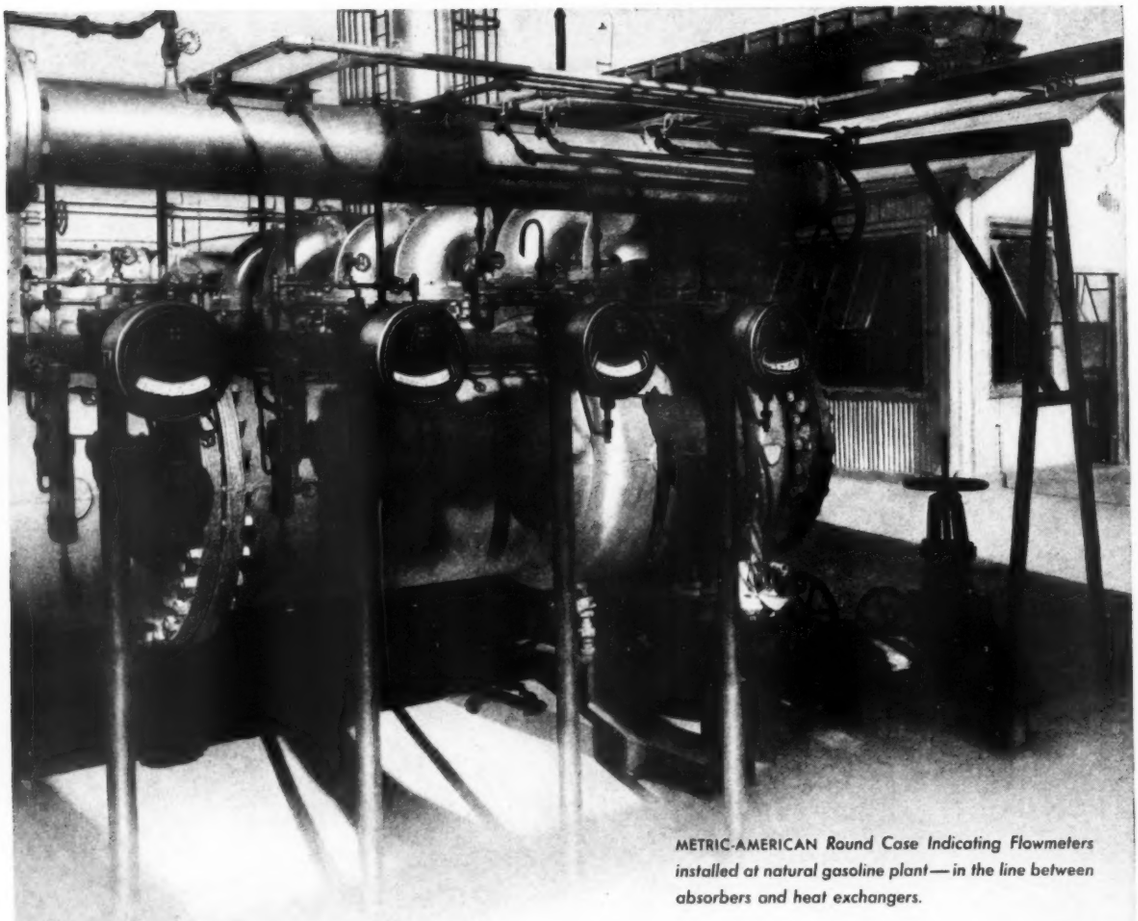
ESTABLISHED 1828

SPANG, CHALFANT & CO., INC.

GENERAL OFFICES; GRANT BUILDING, PITTSBURGH, PA.

SALES OFFICES: BOSTON, NEW YORK, PITTSBURGH, ATLANTA, CHICAGO, ST. LOUIS, TULSA, HOUSTON, SAN FRANCISCO, LOS ANGELES

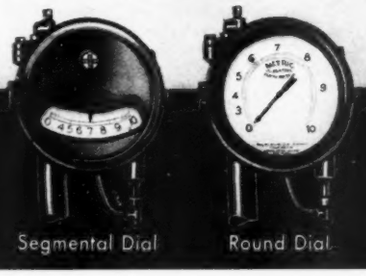
WELDED MILLS: ETNA, PENNA., SHARPSBURG, PENNA. . . . SEAMLESS MILLS: AMBRIDGE, PENNA.



METRIC-AMERICAN *Round Case Indicating Flowmeters installed at natural gasoline plant—in the line between absorbers and heat exchangers.*

The flowmeter goes modern...

Advanced design . . . greater simplicity . . . maintained fine accuracy . . . • A thoroughly modernized instrument which has promptly become a favorite in the industry! Every part is accessible for cleaning and adjustment. Float lever can be adjusted without disturbing the other working parts. By simply removing top, a low pressure test can be run and float action observed. • The Round Case Flowmeter consists of a modified U-gage with mercury seal, and a sturdy, attractively-designed case to enclose indicator and dial. A steel float, actuated by the rise of the mercury, is attached by lever to a horizontal bearing shaft which extends through an adjustable lapped stainless steel stuffing-box into the case. The differential gage is constructed of forged steel throughout. • Complete data furnished on the applications and operation of METRIC-AMERICAN Indicating Flowmeters. Or Recording and Integrating Flowmeters. 867

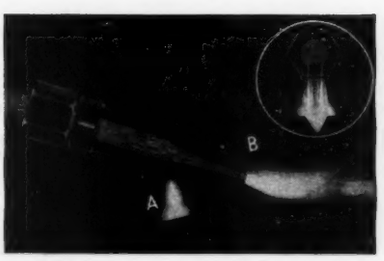


ESTABLISHED 1836
AMERICAN METER COMPANY
INCORPORATED
Measurement and control of Gas, Oil, Steam, Air and Liquids
METRIC METAL WORKS *ERIE, PENNSYLVANIA*

Joints as dependable as the pipe
made with Multi-Flame Lindewelding

PIPE-LINE connections can be made as dependable as the pipe itself by Multi-Flame Lindewelding. This method of joining pipe makes connections that are unusually ductile and at the same time are as strong and corrosion-resistant as the pipe base metal. Multi-Flame Lindewelding is fast and economical and does not alter the smooth, streamlined interior or exterior of the pipe.

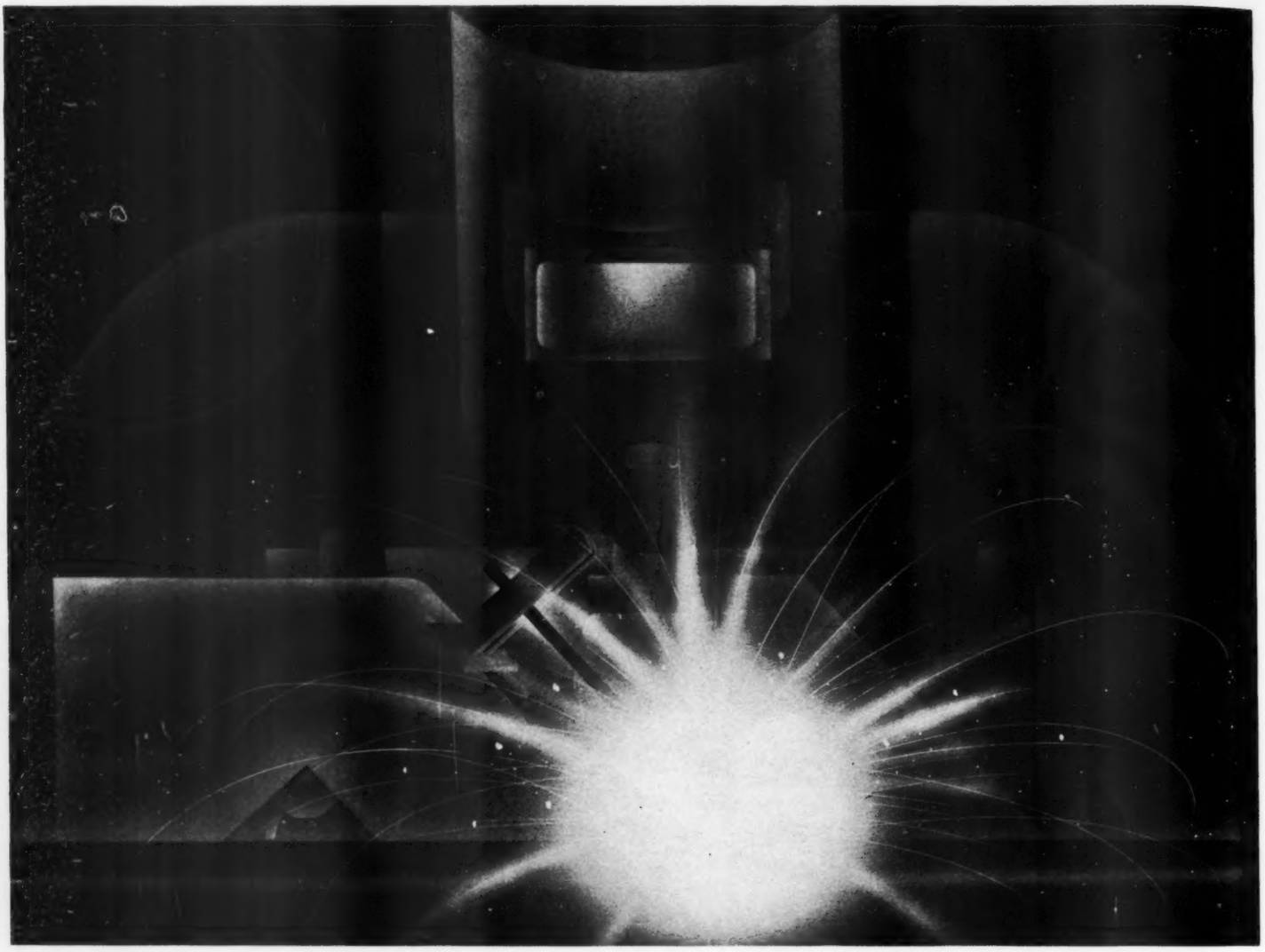
The Linde organization can assist your engineers with its wide knowledge and experience in planning and organizing pipe-line projects. Ask the nearest Linde office for your copy of the helpful booklet "Lindewelding Pipe Lines." The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation, New York and principal cities.



This schematic cross section shows the Multi-Flame Lindewelding Head in action. The small flames, A, preheat the pipe while the main flame, B, melts the welding rod and postheats the weld. In the circle is a cross-sectional view through the preheating flames, A.

Everything for Oxy-Acetylene Welding and Cutting

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES FROM UCC LINDE UNION CARBIDE



For new requirements . . . MOLY steels

WITH the decided trend toward higher steam pressures and temperatures, there is also a growing tendency toward welded pipe-line assemblies.

Carbon-Molybdenum steel is being used more and more extensively in steam-line construction because it meets the stricter present-day requirements: It has good creep strength and retains its strength at elevated temperatures. It lends itself to welded construction. And—its cost is so low, in comparison with its advantages, that in the end it is really the most economical steel for the purpose. In a weldability investigation, tests showed:

At room temperature Carbon-Molybdenum steel was 10% higher in tensile strength and 20% higher in yield point than Carbon steel;

At 950° F. the drop in these qualities respectively was 14% and 15% for Carbon-Molybdenum and 31% and 34% for Carbon;

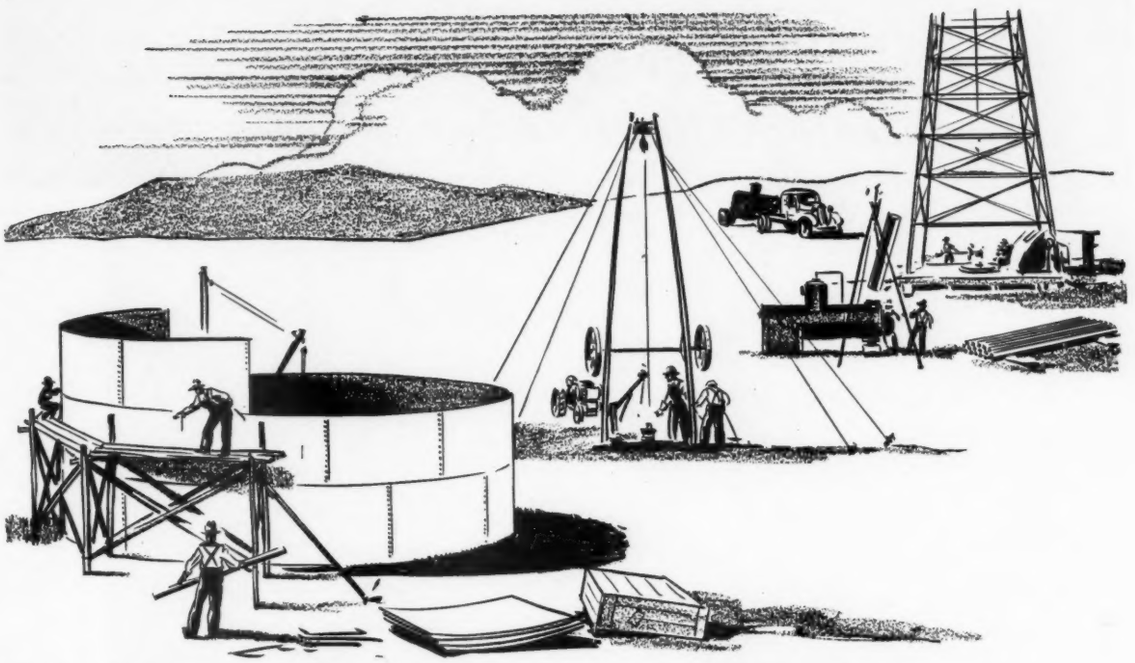
At 1050° F. the drop in both qualities was 24% for Carbon-Molybdenum and 50% for Carbon.

Our technical book, "Molybdenum," will prove useful to engineers and production heads interested in cost cutting and product improvement. Our monthly news-sheet, "The Moly Matrix," keeps readers informed on Moly developments. Both sent free on request. Our laboratory is available for the study of special ferrous problems. Climax Molybdenum Co., 500 Fifth Ave., New York.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

Climax Mo-lyb-den-um Company

MOLY



If You Need an Oil Loan We Want to Make It!

Increased activity in all branches of the oil industry reflects the general improvement in business conditions. New wells are being drilled; many wells are going on the pump; settled production is being rehabilitated; new equipment is being installed.

Oil operators are busy in Oklahoma, Texas, Kansas, Louisiana, Arkansas and New Mexico. New fields are being developed; newer areas are being prospected. Such activity calls for new credit and refinancing.

If you need money for oil operations—whether for new development or improvement of producing properties—anywhere in the Mid-Continent area—we want to take care of your requirements.

"The Oil Bank of America" is banking headquarters for hundreds of independent operators and scores of companies, large and small.

Many of our officers were trained in oil financing. Our geological, engineering and legal departments specialize in oil. Our facilities and resources are ample. That's why "The Oil Bank of America" has been banking headquarters for oil companies and individual operators alike. If you have a sound oil proposition it will pay you to discuss your financial requirements with this bank.

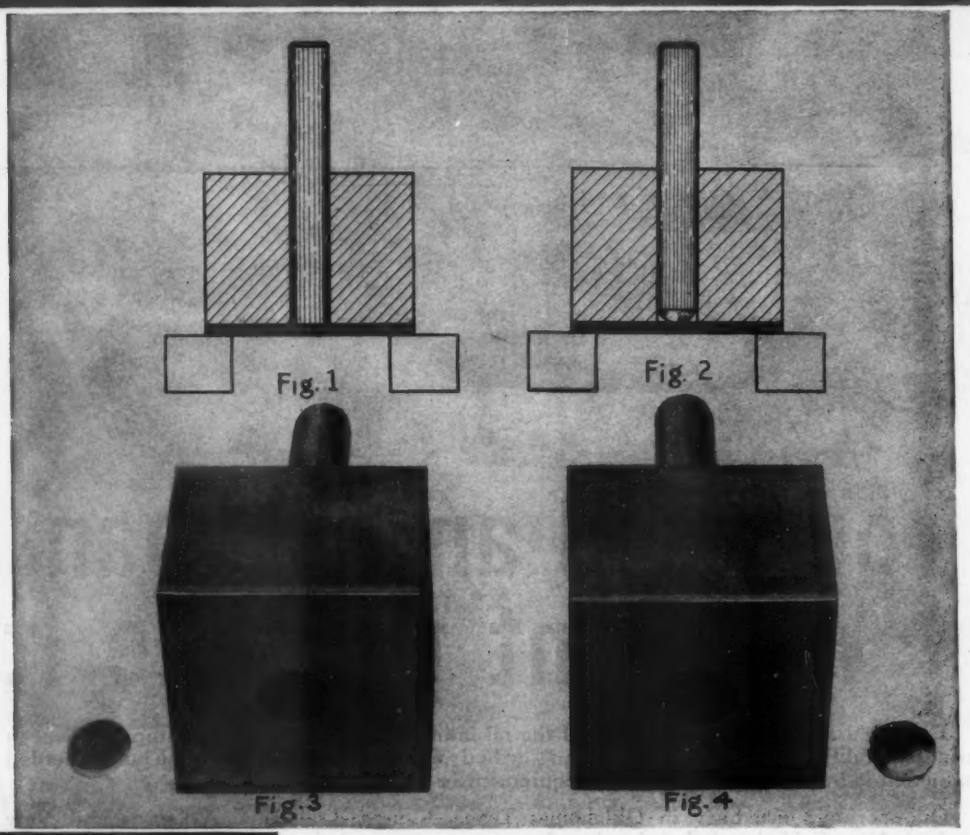
NATIONAL BANK of TULSA

The Oil Bank of America

Member Federal Deposit Insurance Corporation

KELCALOY

Integrally Bonded Plates



PRESSURE VESSELS FABRICATED FROM KELCALOY Integrally Bonded Plates Offer Fullmark The Greatest Known Protection Against CORROSION

PUNCHING TEST

Into two blocks of 1½ in. thick Kelcaloy a ½ in. hole was drilled with an end mill down to the interface between the alloy and the carbon steel base. A flat-nosed punch was then used to punch through the alloy of one block and a round nosed punch to punch through the other. Not the slightest sign of bond failure between the alloy and the steel base could be detected in either block and in both tests the failure was a pure shear in the alloy. Another proof of the homogeneity of Kelcaloy. (Tests conducted at Room Temperature.)

THE M. W. KELLOGG COMPANY · JERSEY CITY, NEW JERSEY · 225 BROADWAY, NEW YORK
Los Angeles: 1031 South Broadway · Houston, Texas · Chicago: 1 La Salle Street · Tulsa: Philtower Building

KELLOGG

"Masterweld" pressure vessels for the Power, Refinery and Chemical Industries. Power Plant and Industrial piping. Heat Exchangers, Radial Brick Chimneys, Plastic Refractories. Cross, Holmes-Manley, de Florez and Tube and Tank cracking units. Gas Polymerization Units. Deasphalting, Dewaxing, Solvent Extraction, Acid Treating Plants, Absorption Plants and Pipe Stills.

BRUTE STRENGTH

RUGGED design and construction. Heavy ribs and extra heavy base. Heat treated and hardened helical gears. Low speed shaft of one diameter made of fatigue-resisting steel. Over-sized bearings on all shafts. Those are some of the things that have made IXL oil well pumping units the standard in the fields where the going is tough!

There is more than 76 years of precision gear manufacturing experience behind them, too. When you add the policies of careful inspection and rigid testing to these facts there is only one answer—IXL Helical Pumping Reducers are built for oil field service. You should investigate their advantages. There are warehouse stocks available in most oil centers.

IXL HELICAL PUMP DRIVES are built for single or double reduction. They are available in any horsepower, any desired speed or for gas engine or electric motor drive.

FOOTE BROS.
GEAR & MACHINE CORPORATION
5306 S. Western Boulevard - Chicago

Warehousing Distributors:

FRICK-REID SUPPLY CORP., Tulsa, Okla.

REPUBLIC SUPPLY CORP. OF CALIF. Los Angeles, Calif.

Direct Factory Representatives:

GEORGE J. FIX, 2413 Commerce St., Dallas, Texas

MAX E. LANDRY, 533 Mayo Bldg., Tulsa, Okla.

T. C. GRAHAM, P. O. Box 596, Overton, Texas

THE LAYNE
Milled Groove
SCREEN

Ten into One.

A Layne Milled Groove Screen with a .010 gauge opening between the wires has 10 openings that pass directly over the milled groove. All of this fluid is directed into the one perforation from which the milled groove extends. This is approximately 2½ times the number of openings letting fluid into the perforations that the ordinary screen has.

Multiply this greater inlet capacity per perforation by the number of perforations in the pipe, and you'll easily see why "YOU GET MORE OUT OF A LAYNE SCREEN".

You can do no better than installing a Layne Screen.

LAYNE & BOWLER COMPANY **HOUSTON, TEXAS**

Dependable Power FOR OIL WELL PUMPING

LYCOMING
NATURAL GAS ENGINES

FOR nearly a third of a century the name "Lycoming" has stood for dependable power in many different fields. Now Lycoming Natural Gas Engines are demonstrating this same dependability in oil well pumping and other oil field power applications. These heavy duty engines, specially designed to operate on Natural Gas, are engineered for 100,000 hours dependable duty! Lycoming "AG" series power units incorporate special advantages that make them unusually desirable for the exacting demands of oil-field operation. Brake thermal efficiency is high. Heavy construction is employed where needed for added engine life.

Engine maintenance and attendance are reduced to an absolute minimum by such features as: Hydraulic self-adjusting valve tappets—Silchrome steel exhaust valve seats—built-in gear-driven governor, with no external linkage—pressure lubrication to all moving parts—packless water pump—water and oil safety devices—elimination of all tubing in lubrication and engine cooling system—and large removable inspection plates on both sides of engine base.

Lycoming "AG" series available in 4, 6 and 8 cylinder models, identical in basic design, with majority of parts interchangeable.

POWER UNIT RATINGS AND WEIGHTS

Model	*Rated H. P*	*Net Weight*
AG4-O	16-22	1290
AG6-O	24-33	1580
AG8-O	34-46	1790

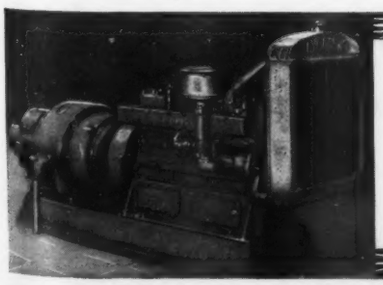
DRIVING PUMPS ON SMALL GATHERING LINES

Another oil-field operation in which Lycoming Natural Gas Engines are proving highly efficient is driving rotary and power pumps on small gathering lines. Here their economy as well as day-after-day dependability are especially appreciated.

Write for new booklet on AG Series for Oil Well Pumping, giving complete engine description and specifications.

LYCOMING MANUFACTURING COMPANY

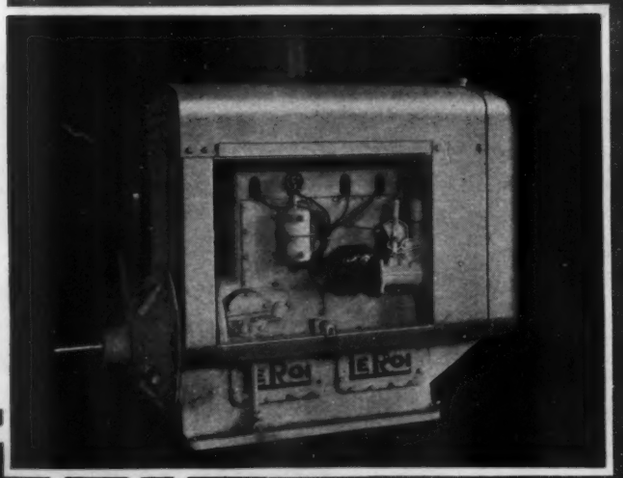
Los Angeles Office and Warehouse: 3443 Wilshire Blvd., Phone Fitzroy 3122-3 • Bakersfield Warehouse
Dallas Office & Warehouse—3600 Commerce St. • Moorlane Co.—Office & Warehouse—409-11 East Archer St., Tulsa—565 First National Bank Bldg., Oklahoma City
Home Office, Works and Foundries, Williamsport, Pennsylvania



LYCOMING GENERATING UNITS
for Field-Camp Lighting

Many applications are found in Oil Fields for Lycoming Natural Gas Engine Generating Units. These single or dual-engine units are especially valuable for supplying electric light and power in field camps—operating small horsepower motors—lighting employes' semi-permanent residences, or wherever electric light or power is needed. Units range in size from 10 to 60 KW.

LE ROI ENGINES



(Model D471-40 to 60 H.P. Oil Well Pumping Unit)

Dependable POWER for OIL WELL PUMPING

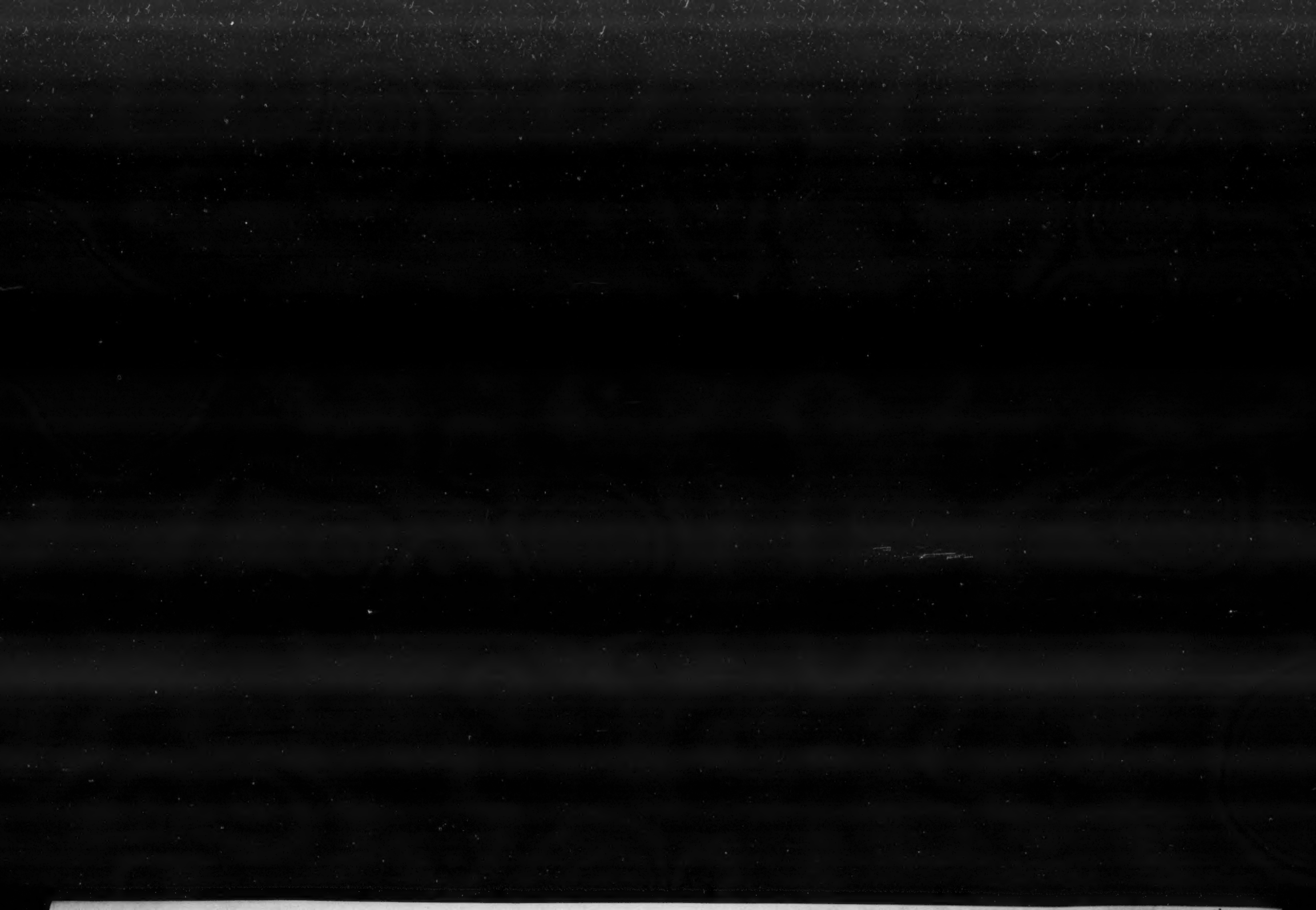
AVAILABLE in a range of seven sizes—15 to 173 H.P.—Le Roi Valve-in-Head Engine Pumping Units are specially designed for the dependable operation required for oil field service.

Le Roi operating speeds are conservative, but speeds above normal ratings can be maintained for running potentials without taxing the engine. Units can be equipped to burn natural gas, butane, or gasoline . . . Write for complete information.

Le Roi Company also builds engines for Rotary drilling rigs, pipe line pumping stations and miscellaneous oil field service, sizes ranging from 4 to 400 H. P.—Engine driven generator units sizes ranging from 1½ to 200 K. W. — A. C. or D. C.

LE ROI COMPANY—MILWAUKEE, WISCONSIN

***Branch Office and Warehouse* . . . TULSA, OKLAHOMA**



WARREN PETROLEUM COMPANY
WARREN
TULSA, OKLAHOMA
Performance Plus
with WARREN'S STABILIZED NATURAL GASOLINE
INSTANT STARTING
HIGHER OCTANE
INCREASED VOLATILITY
LOWER FRONT END
MAXIMUM POWER
BUTANE
PROPANE
JUST NATURAL GASOLINE
Performance Plus in modern motor fuel is available to the world's refiners who use Warren's Stabilized Natural Gasoline for blending purposes. Instant starting, higher octane, increased volatility, lower front end, maximum power—these plus factors in Stabilized Natural become definite elements in your gasoline.
Warren, through a vast net work of plants in Oklahoma, Texas, Kansas, Louisiana, and New Mexico; modern storage at strategic points and adequate shipping facilities, offers an ample supply and consistent quality of Stabilized Natural Gasoline. Warren manufactures and sells Just Natural Gasoline.
WARREN PETROLEUM COMPANY
Tulsa, Oklahoma
MANUFACTURERS, EXPORTERS AND MARKETERS
Export Terminals: Port Arthur and Norsworthy, Houston, Texas

FULFILLING

MODERN REFINERS' DEMANDS

Today, after twelve years of intensive operating and research experience, Filtrol Corporation supplies many progressive refiners with SUPER FILTROL . . . an artificially activated clay that is prepared by chemical treatment under protective patents. Every sale is accompanied by a licensed right* covering its use under patents of Contact Filtration Company relating to clarification, neutralization and decolorization of petroleum oil.

★ PROTECTING LICENSE TO REFINERS

The purchaser of this clay is licensed to employ it in the clarification, decolorization and neutralization of petroleum oil under the patents of Contact Filtration Company.

Those interested are invited to make inquiry regarding their particular requirements.

Address Department A

FILTROL CORPORATION

315 WEST FIFTH STREET, LOS ANGELES, CALIFORNIA

BRANCHES: New York ● Philadelphia

EUROPEAN REPRESENTATIVE:
Dr. Hermann Bensmann
Postfache 482, Bremen, Germany

PLANTS: Los Angeles ● Jackson, Miss.

ARGENTINE REPRESENTATIVE:
Rolando J. Longoni
441 Bme Mitre, Buenos Aires, Argentina

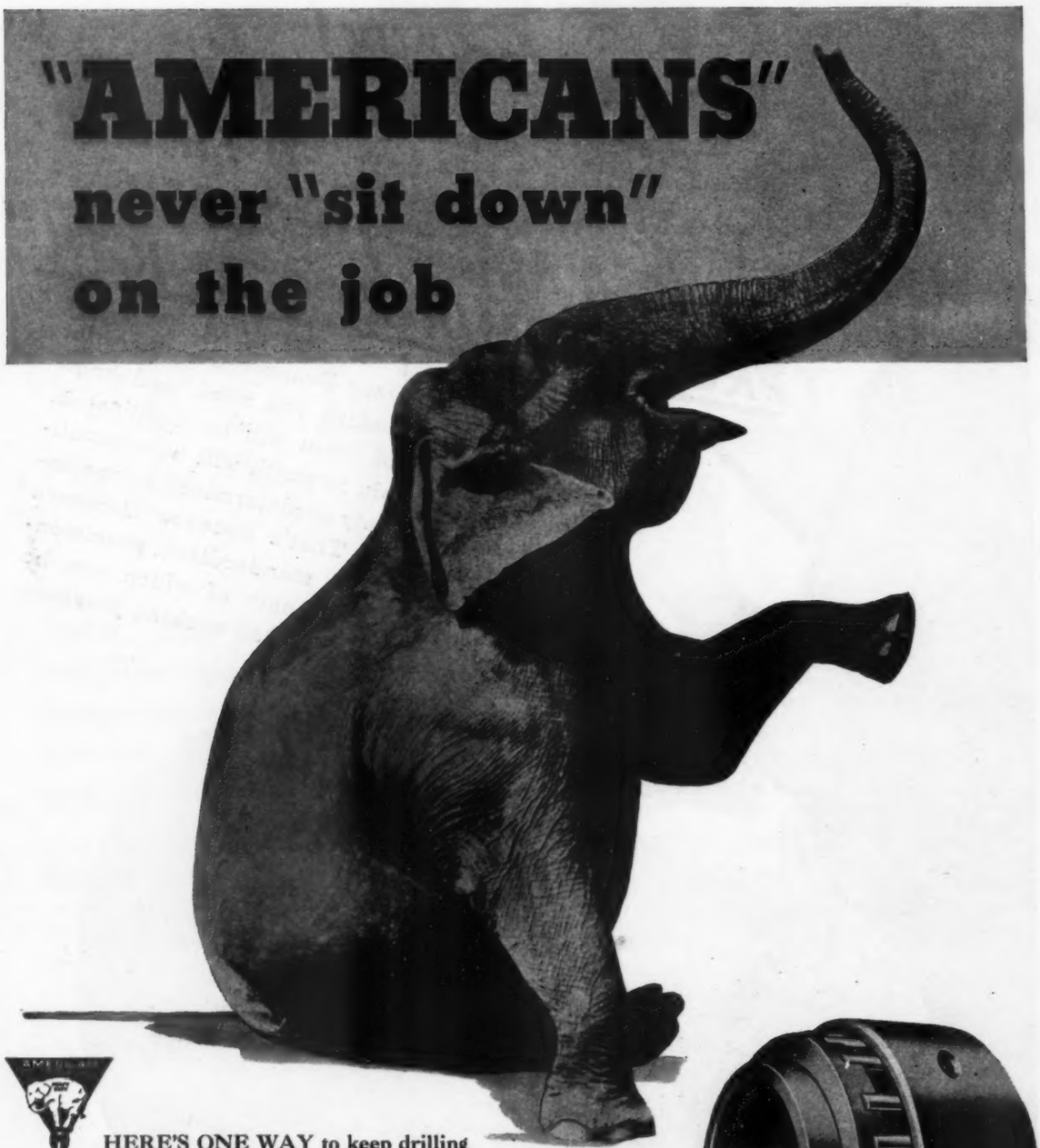
"NO EXCEPTIONS! EVERY JOINT ON A DRESSER-COUPLED LINE HAS A MADE-TO-ORDER, PREDETERMINED STRENGTH"

You may order your Dresser Couplings for any working pressure you need, and know that every one of them will be identical in strength. And this strength will be scientifically and accurately predetermined by mathematical formula. That's because Dressers are assembled from standardized, precision-made parts—the strength of which can be varied to suit the specified working pressure.

Note to Reader:
This is the eleventh in a series of advertisements dramatizing one engineer's experience with his first Dresser-coupled line. For the complete story, write for Bulletin No. 351.

S. R. DRESSER
MFG. COMPANY, BRADFORD, PA.
In Canada: Dresser Mfg. Company, Ltd., 80 Front St., West, Toronto, Ont.

"AMERICANS" never "sit down" on the job



HERE'S ONE WAY to keep drilling equipment running smoothly, hard at work. Give steady employment to American Roller Bearings!

These heavy-duty bearings have never been "fired" from any installation. They're *specialized* for heavy-duty drilling; now in the employ of *thirty* separate equipment manufacturers.

We hereby file application to *prove to you* that AMERICANS make oil-field tools work better, last longer.

THE AMERICAN ROLLER BEARING COMPANY, Pittsburgh, Pa.
PACIFIC COAST OFFICE: 321 W. PICO ST., LOS ANGELES

AMERICAN *HEAVY DUTY* **ROLLER BEARINGS**

The word's going 'round
from field to field –
"..FOR SURFACE
DIGGING, USE THE
HUGHES OSQ-2
ROCK BIT"

... further proof that

HUGHES

Tailor-Made

ROCK BITS

mean increased drilling efficiency and lower drilling costs

●

Good News Travels Fast . . .

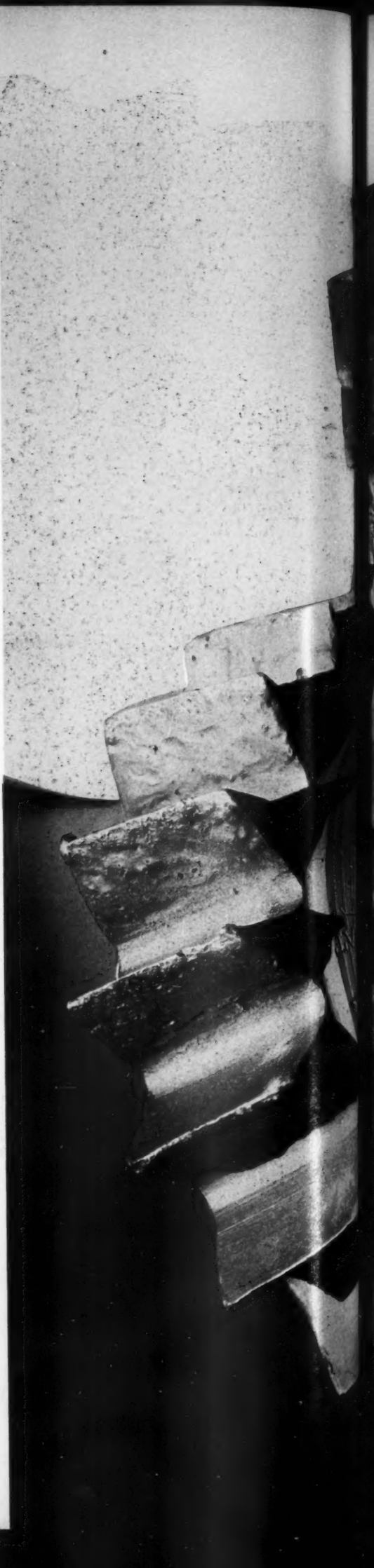
Certainly this has been true about the performance of Hughes OSQ-2 Type Tri-Cone Rock Bits in surface digging.

In field after field, operators, contractors and drillers have found this type Hughes Rock Bit a time and money saver in making the first 1000-2000 feet of hole.

Especially designed for "top" formation digging —with coarse teeth capable of drilling fast in soft strata—yet able to penetrate hard layers that cause drag bits plenty of trouble—this bit cuts off-bottom time as well as bit costs.

Yes—the word's going 'round—Use a Hughes OSQ-2 Type Tri-Cone Rock Bit for surface digging. It will pay you to heed the word.

●



... from Grass Roots
to Casing Seat —

IT PAYS TO USE

HUGHES
Tailor-Made ROCK BITS

A Common Sense Development in Rock Bit Manufacture

Here are four popular types of Hughes Tri-Cone Rock Bits—with the formations for which they are especially adapted.

1. **Type "OS"**
   Unconsolidated shales, sands, chalk, salt, anhydrite, and gypsum.
2. **Type "D"**
   Lime Rock and sandy lime. (Known as the "Lime Special.")
3. **Type "W"**
   Dolomite, dolomitic lime rocks, slate and hard shales.
4. **Type "R"**
   Hard abrasive formations such as Dolomitic sand Rock, pyrite, granite, chert, quartzite and basalt.

HUGHES TOOL COMPANY
Houston, Texas, U. S. A.

Top—Streams cut oil, Eldorado field, 1917.

Bottom—Cut oil, Eldorado, Kans., oil field, 1917.

•

TRET-O-LITE COMPANY

MANUFACTURING CHEMISTS

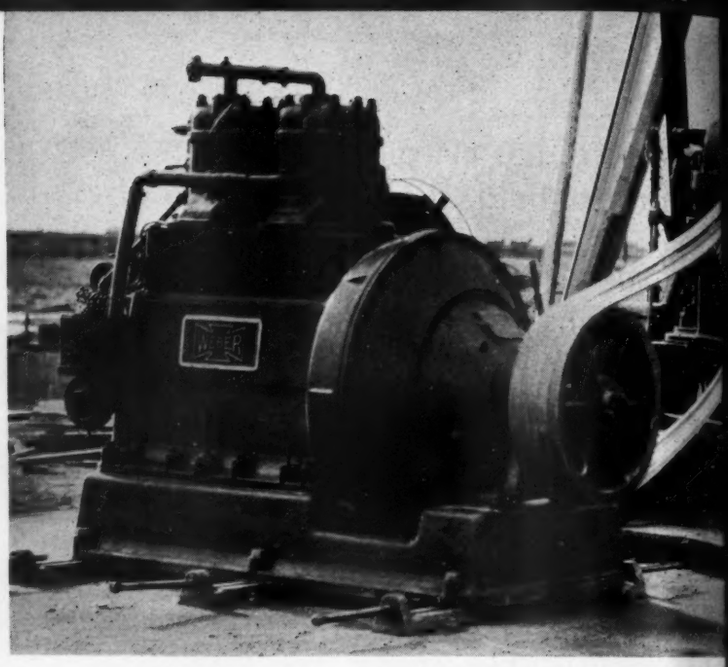
ST. LOUIS

DALLAS • • LOS ANGELES

Representatives in all Principal Fields

WEBER ENGINES ARE DIFFERENT

13″ x 14″ Roller Bearing Gas Engine, Fitts Pool, Oklahoma.



7½″ x 9″ Vertical Gas Engine, Winkler County, Texas.

WE COVER THE MID-CONTINENT WITH

Engineering Service
Field Approved Equipment
Strategically Located Stores
Quick Delivery

IT IS THE DESIGN THAT COUNTS!

SIMPLICITY! ECONOMY! DEPENDABILITY! HEAVY-DUTY! PRECISION-BUILT!

They are common terms. What do they mean? Let us tell you in terms of design; then draw your own conclusions.

An "All Atlas" Installation with a Weber Engine, Foote Bros. Gear Reducer, and Steel Products Front will save you money and give you enduring satisfaction. Compare the design.

GENERAL OFFICES: MUSKOGEE, OKLAHOMA

Branch Stores:

Kansas—Bushton, McPherson, Russell, Wichita*

Oklahoma—Ada, Blackwell, Chandler, Fittstown, Muskogee, Oklahoma City, Seminole, Tulsa*

Texas—Greggton, Gladewater, Fort Worth, Kermit, Odessa, Overton, Wink, Houston*

*Offices Only

ATLAS SUPPLY CO.

GENERAL OFFICES
MUSKOGEE, OKLA.

BRANCHES LOCATED AT PRINCIPAL POINTS IN MID-CONTINENT

G.S.I. Skilled Craftsmen

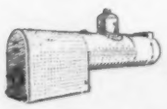
The artisan pictured above is one of a group of master machinists who take pride in producing seismic instruments and equipment to the closest precision limits known to the geophysical industry.

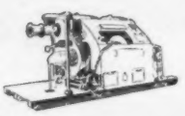
Our field men take the same craftsman's pride in turning out the greatest possible production consistent with the quality standards this company has always endeavored to maintain.

GEOPHYSICAL SERVICE · INC.

DALLAS, TEXAS

FRICK

For many years  our field stores have been the connecting link between the world's foremost manufacturers of oil country equipment and many of the leading American drillers, producers, transporters and refiners in the Petroleum Industry.

¶ Through hundreds of employees who live  and work in oil field communities from the Atlantic Coast to the Rocky Mountains, through hundreds of loyal firms and individuals who are FRICK-REID customers, through the great manufacturers we represent and through other ramifications of our long-established

FRICK-REID SUP

PITTSBURGH, PA.

Equipment Suppliers Exclusively.....

OLIVER
PRECOAT FILTRATION
for Contact Clays

For many months a 5'x4' Oliver Precoat Filter has been operating in an important oil refinery, removing the contact clays from a 68 seconds S. U. viscosity lube oil.

The results are most interesting. Briefly, here are four of the advantages that the refinery found by contrasting Oliver Precoat Filtration with the former methods:

- operations are faster because the desired clarity can be obtained in one step; final blotter press clarification is not needed.
- operations are continuous in that the filter runs 7 days without interruption; 1 hour for "precoating"; then back to the 7 days continuous run again.
- no constant supervision with frequent manipulation of valves, etc., is needed.
- much less oil is retained in filter cake; hence more oil is recovered.

As stated above, these results are most interesting and significant. Laboratory and semi-commercial tests on other products indicate that Oliver Precoat Filtration is markedly superior to batch filtration both as to results and costs.

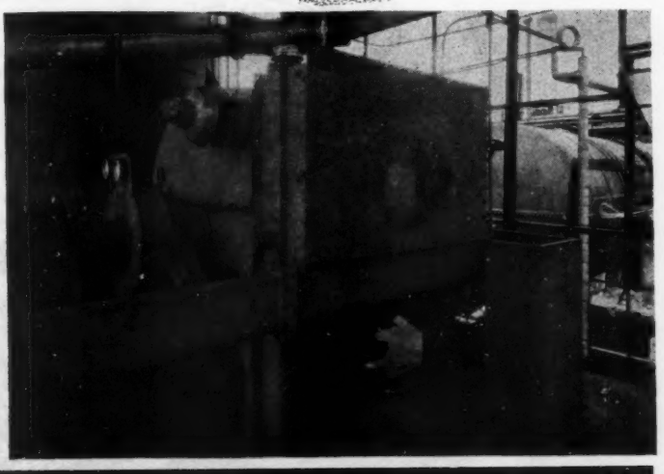
In writing for further information, tell us to what phase of your production you would like to apply Oliver Precoat Filtration.

OLIVER UNITED FILTERS INC.

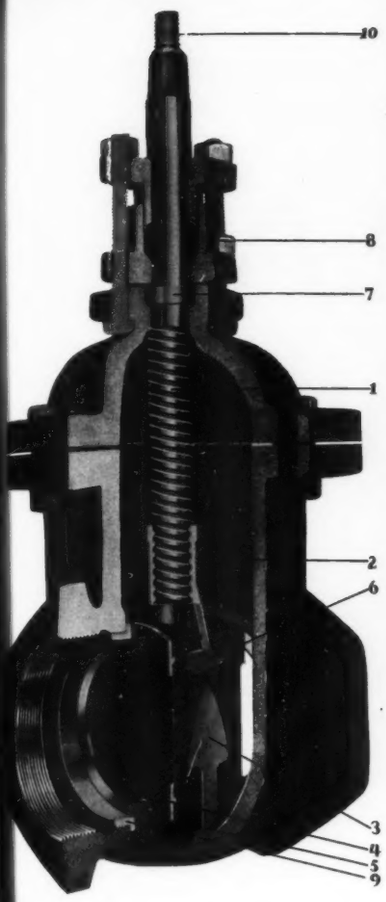
33 West 42nd St.
New York, N. Y.

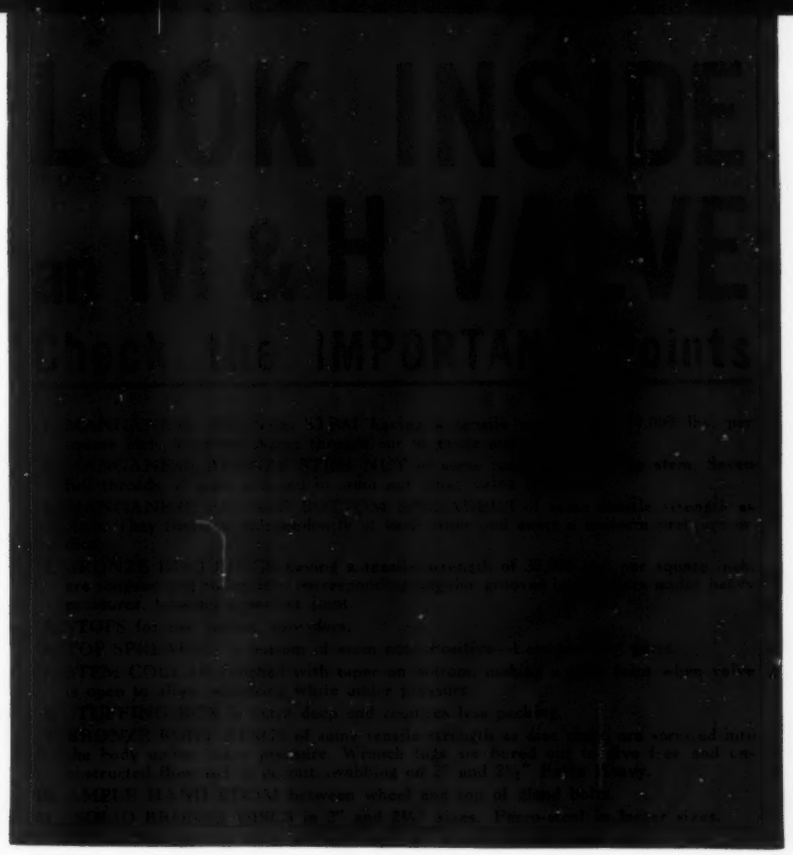
351 California St.
San Francisco, Calif.

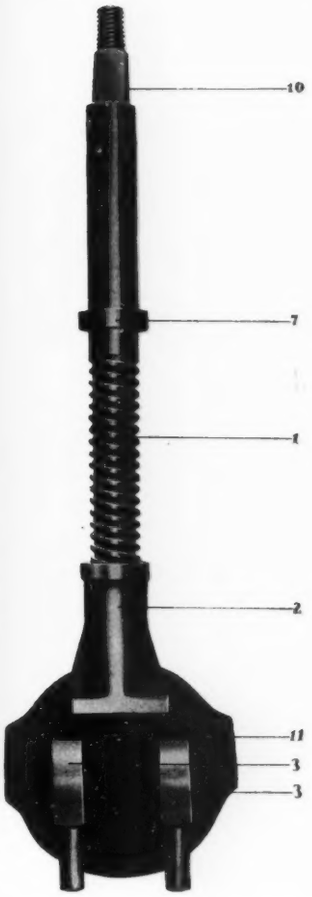
221 N. LaSalle St.
Chicago, Ill.



There's a Whale of a Difference
between "JUNK" and SERVICEABLE Used Equipment!
• The first 1000 miles on a new automobile carries the heaviest depreciation cost of the entire life of the car. The first few miles makes it a used car though it may be capable of rendering a 100-thousand miles or more of dependable and economical service.
• The same thing, exactly, is true of oil field equipment. The first depreciation is the greatest. The remaining service, up to the point where it should be discarded as too expensive to operate or unsafe to use, is the least costly.
• We don't buy "junk" oil field equipment or offer it for sale. We do buy, recondition and sell the highest grades of serviceable used equipment of all kinds.
We can make you money when you have this class of equipment to sell, and we can save you money when you wish to buy it.
Telephone our nearest Store, Office or Sales Representative when you're ready to buy, sell or trade either new or used equipment.
BRIDGEPORT
MACHINE COMPANY
Manufacturers and Distributors
OIL FIELD EQUIPMENT
HOUSTON - DALLAS - SAN ANTONIO
CORPUS CHRISTI - SHREVEPORT
ODESSA - TULSA - OKLAHOMA CITY - WICHITA - AND BRANCH STORES







M & H Red Wheel Double Disc Parallel Seat Gate Valves are made in sizes from 2" to 8" inclusive (Both Standard and Extra Heavy) and are the last word in Design, Material and Workmanship, being particularly adapted to the requirements of Oil Fields and Refineries.

The three point contact of the wedging mechanism, all parts of which are high tensile manganese bronze, exerts an equal and evenly distributed wedging force against the discs, insuring a perfectly tight seat at maximum or minimum pressures.

All iron castings are made from a special mixture of high grade pig iron and steel, producing a close grain Ferro-Steel having an average tensile strength of 30,000 pounds per square inch.

The machine work entering into the construction of these valves is done to gauges, insuring a perfect fit as well as interchangeability of parts.

M & H Red Wheel Valves are so constructed that at no point in the valve is there an iron to iron contact of the working parts. This eliminates corrosion and sticking so often encountered in valves not embodying this feature.

All Valves are thoroughly tested before leaving the factory. Standard Valves are tested to a hydrostatic pressure of 400 pounds per square inch and Extra Heavy Valves to 800 pounds per square inch. These test pressures together with the working pressures for Steam, Oil, Water and Gas are cast in raised letters on the body of each valve.

Insist on getting M & H RED WHEEL Valves on your next requisition.

Figure No. 510
Figure No. 520 (Flanged)

IRON BODY BRONZE MOUNTED GATE VALVES

SIZE—INCHES		2	2½	3	4	6	8
Fig. 510—Screwed—Non-Rising Stem	Standard	10.00	11.50	14.00	19.00	32.50	54.00
Fig. 520—Flanged—Non-Rising Stem	Standard	12.00	13.50	16.50	23.00	36.50	58.00
Fig. 530—Screwed—Rising Stem	Standard	19.00	20.50	23.50	32.50	52.00	86.00
Fig. 540—Flanged—Rising Stem	Standard	21.00	22.50	26.00	36.50	56.00	90.00
Fig. 1300—Screwed—Non-Rising Stem	Extra Heavy	27.50	33.00	45.00	60.00	100.00	155.00
Fig. 1310—Flanged—Non-Rising Stem	Extra Heavy	30.00	35.50	48.00	65.00	107.00	162.00
Fig. 1320—Screwed—Rising Stem	Extra Heavy	35.50	41.00	54.00	72.00	115.00	180.00
Fig. 1330—Flanged—Rising Stem	Extra Heavy	38.00	43.50	57.00	77.00	122.00	187.00

IRON BODY BRONZE MOUNTED SWING CHECK VALVES
FULL OPENING—400 LB. TEST—HEAVY PATTERN

SIZE—INCHES		2	2½	3	4	5	6	8	10	12
Fig. 24—Screwed Bronze Faced Disc	Each	11.00	12.00	13.50	20.00	30.00	36.00	70.00	110.00	160.00
Fig. 24-R—Screwed Rubber Disc	Add Each	1.00	1.50	2.00	3.00	4.00	4.00	7.50	10.00	12.00
Fig. 25—Flanged Bronze Faced Disc	Each	13.00	14.50	17.00	24.00	34.00	41.00	75.00	115.00	168.00
Fig. 25-R—Flanged Rubber Disc	Add Each	1.00	1.50	2.00	3.00	4.00	4.00	7.50	10.00	12.00
Drilling	Each	.75	.75	.75	1.25	1.50	1.75	2.25	2.50	3.50
End to End, Screwed	Inches	....	10	10¼	13⅝	....	15 11/16	18¼	21¾	....
Face to Face, Flanged	Inches	....	10	10¼	13	....	16	19	22	....
Diameter, Flange	Inches	6	7	7½	9	....	11	13½	16	19

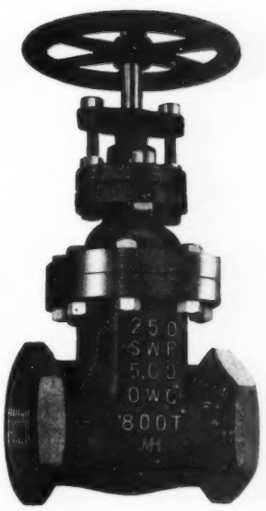


Figure No. 1300
Figure 1310 (Flanged)

Figure 530
Figure No. 540 (Flanged)

Dimension Specifications for M & H 400 lb and 800 lb Test Red Wheel Gate Valves

Size	STANDARD 400 Lb. TEST 2"	2½"	3"	4"	6"	EXTRA HEAVY 800 LB. TEST 2"	2½"	3"	4"	6"
Face to Face (Flanged)	7"	7½"	8"	9"	10½"	8½"	9½"	11⅛"	12"	15⅞"
End to End (Screwed)	5 1/16"	5⅞"	6⅛"	7⅜"	8½"	6"	6⅞"	7¼"	9"	10⅝"
Flanged Diameter (American Standard)	6"	7"	7½"	9"	11"	6½"	7½"	8¼"	10"	12½"
Flange Thickness (American Standard)	9/16"	11/16"	3/4"	15/16"	1"	7/8"	1"	1⅛"	1¼"	1 7/16"
Diameter of Hand Wheel	6"	6"	6¾"	8¾"	11"	6¾"	7½"	8⅞"	11"	13¼"
Number and Size of Bonnet Bolts	4-½"	6-½"	6-½"	6-½"	8-½"	6-½"	8-½"	8-⅝"	8-⅝"	10-¾"
Weight Complete Valve—Screwed	26 lb	30 lb	46 lb	67 lb	130 lb	46 lb	57 lb	82 lb	124 lb	254 lb
Weight Complete Valve—Flanged	32 lb	42 lb	60 lb	86 lb	185 lb	55 lb	72 lb	100 lb	150 lb	295 lb

Fig. 25—Flanged End
Fig. 24—(Screwed End)

You can depend on an M & H Valve to function properly at all times. The material entering into their construction, in addition to that described above, such as bolts, gaskets, packing, etc., are the very best obtainable.

KEEP THIS PAGE AS YOUR CATALOG ON M & H OIL FIELD VALVES

Additional copies furnished on request.

The EUREKA PLUG VALVE

Pat. No.'s { 2023349 / 1976052
Other Patents Pending

Positive Operation by Mechanical Lift

THE EUREKA PLUG VALVE is designed to meet the need of a stop cock valve in the low and high pressure field where the more common stop cocks are prone to become stuck in their housing and making the operation of them dangerous or impossible. The bearing arrangements in the **EUREKA PLUG VALVE** are so designed as to insure positive lifting of the plug from the valve body.

LIFTING DEVICE—A simple appliance of ring balls half embedded in a groove in the stem and half embedded in a groove in the lifting and lowering nut. Rotating of this nut in the desired direction will give a positive raising and lowering of the plug. With the aid of this device it is possible to set the plug firmly in its seat with a greater pressure than is applied to most gate valves. To turn plug, loosen same by turning the lifting nut to the left which raises the plug from its seat and the plug then turns easily.

RAISED SEATS—The seats in this valve have the same principle of operation as those in the gate valve, that is, the plug does not make contact with any part of the case except the two raised seats around the flow holes, thus preventing any foreign matter getting between the case and the plug and holding the plug off its seat.

Self-Cleaning—Requires no lubrication.

Furnished in all sizes in either flanged or screw type.

EUREKA TOOL CO.

OKLAHOMA CITY, OKLAHOMA
Fittstown, Drumright and Seminole, Okla.
Ranger, Texas . . . . . Augusta, Kansas

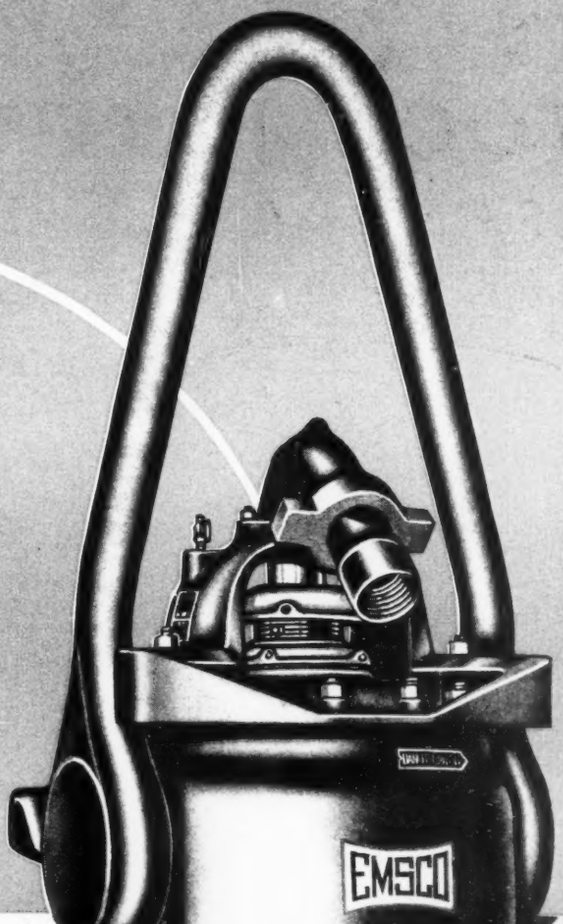
EMSCO Type CA-300 Swivel

Made from a one-piece steel casting, this swivel is heavily reinforced by ribs extending around the inside as well as vertically. The extra large fluid opening of 4" reduces back pressure and increases efficiency of the high pressure pumps now being used.

An extra large oil jacket affording a large oil supply extends completely around the bearing body and a large expansion chamber is provided in the upper casting with relief valves at the top so that a "breathing action" is possible and internal pressure, due to heat, is eliminated.

Positive alignment of the sleeve with the wash pipe, eliminating wear of packing and assuring equal distribution of the load on the main thrust bearing, is accomplished by the use of two American roller bearings and a ball thrust bearing to take the upper thrust of the swivel.

Designed in keeping with Emsco's policy of manufacturing quality products, drilling contractors are assured that this swivel will give dependable service when subjected to the most severe usage.



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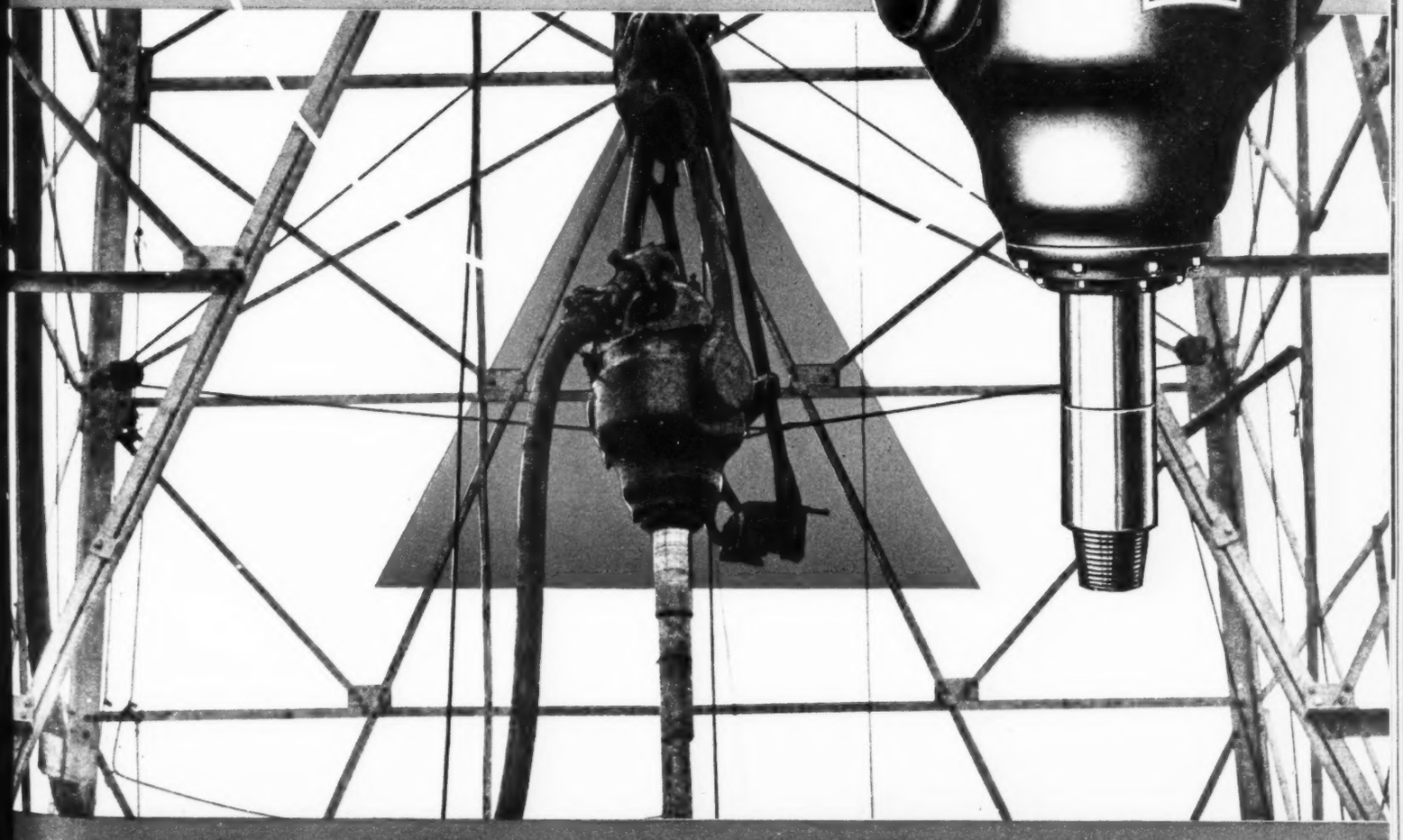

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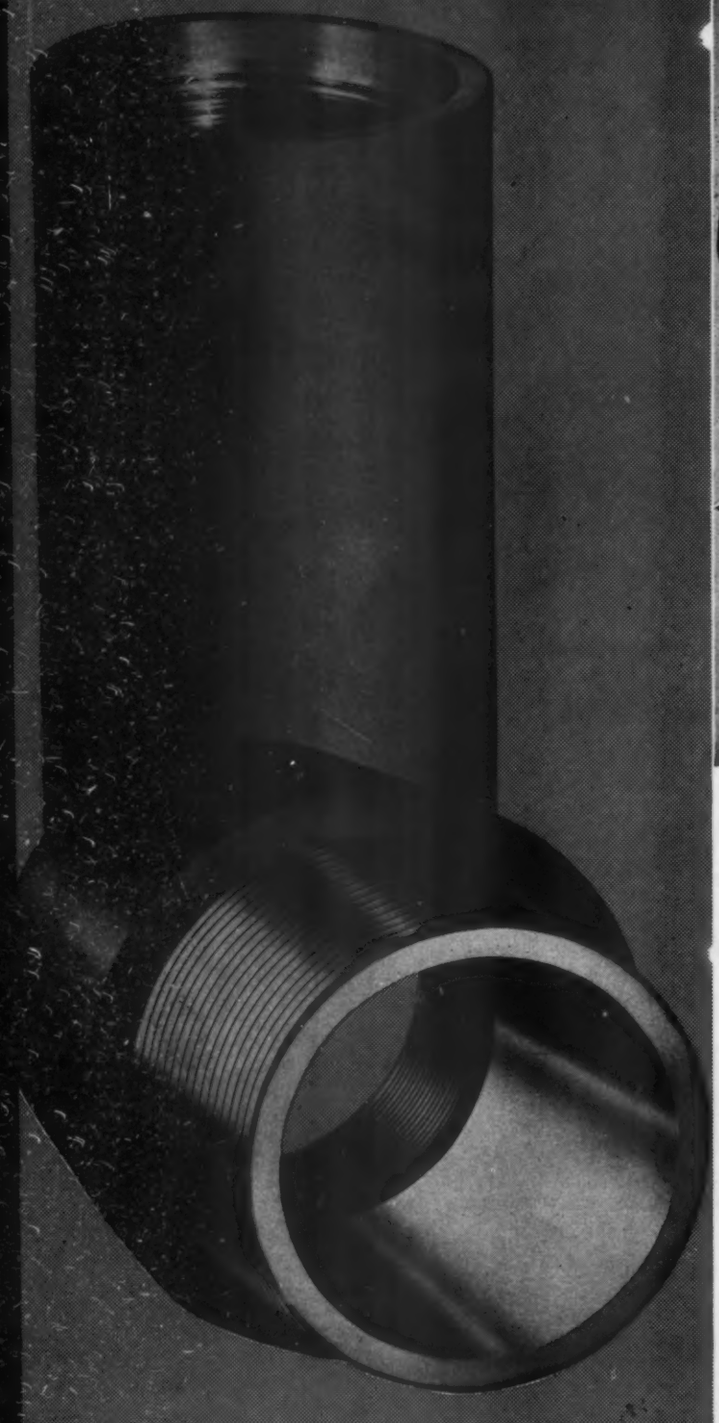
Use REED ROTARY DRILLING TOOLS

REED
TOOL JOINTS
DEPENDABLE AT RECORD DEPTHS



The New

REED DK ROLLER BIT

WITH THE COMBINATION BALL THRUST AND ROLLER BEARING ASSEMBLY

KEEPS THE CUTTERS IN TRUE ALIGNMENT FOR INCREASED CUTTING SPEEDS AND MORE HOLE PER BIT WITH

GREATER SAFETY

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REED ROLLER

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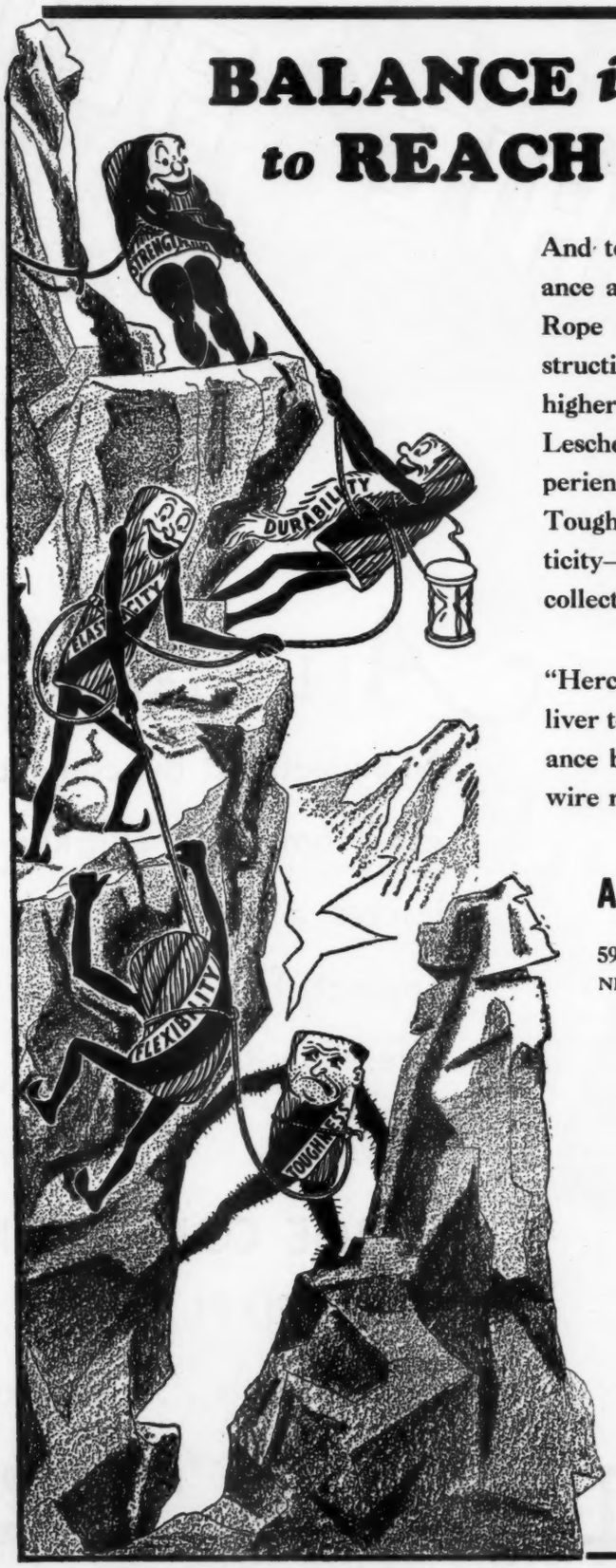
BALANCE *is* ESSENTIAL *to* REACH *the* HEIGHTS!



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"Hercules" (Red Strand) Wire Rope will deliver to you a new "high" in wire rope performance because it sets a new "high" in balanced wire rope construction.

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"UNIT RIG" Challenges Comparison

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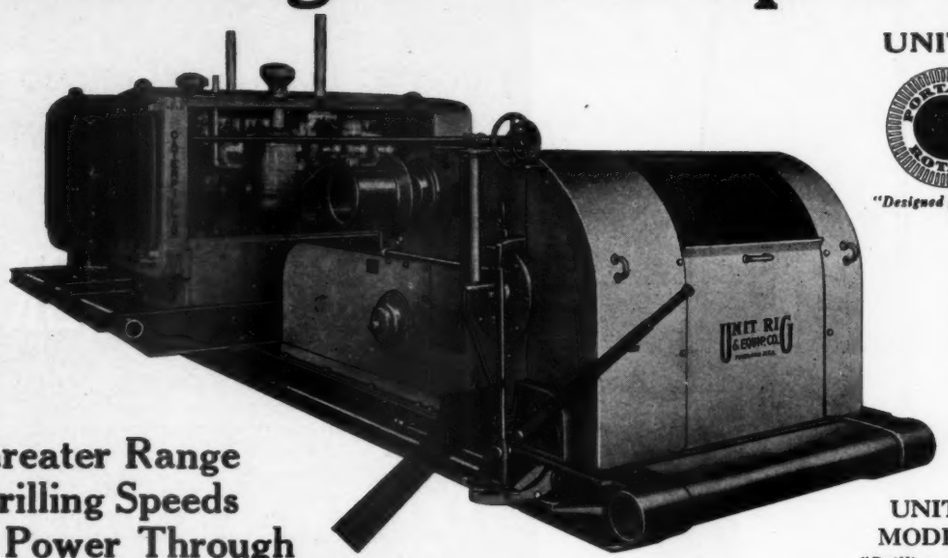
PORTABLE ROTARY

"Designed for the Job"



A Greater Range of Drilling Speeds and Power Through "Flexible Speed Control"

UNIT RIG
MODEL U-10
"Drilling depths 2,000 to 6,500 feet. Powered with Caterpillar Diesel Engines."

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Drum: Chrome-moly brake flanges 40″ diameter, 10″ wide; 39″ between flanges; 16″ drum barrel; 7,200 feet ¾″ cable capacity. Brakes: 95% full-wrap, self-energizing and 100% equalized. Safer and more powerful with only one adjustment point—feeds off perfectly.

Pump size recommended 7¼x14.

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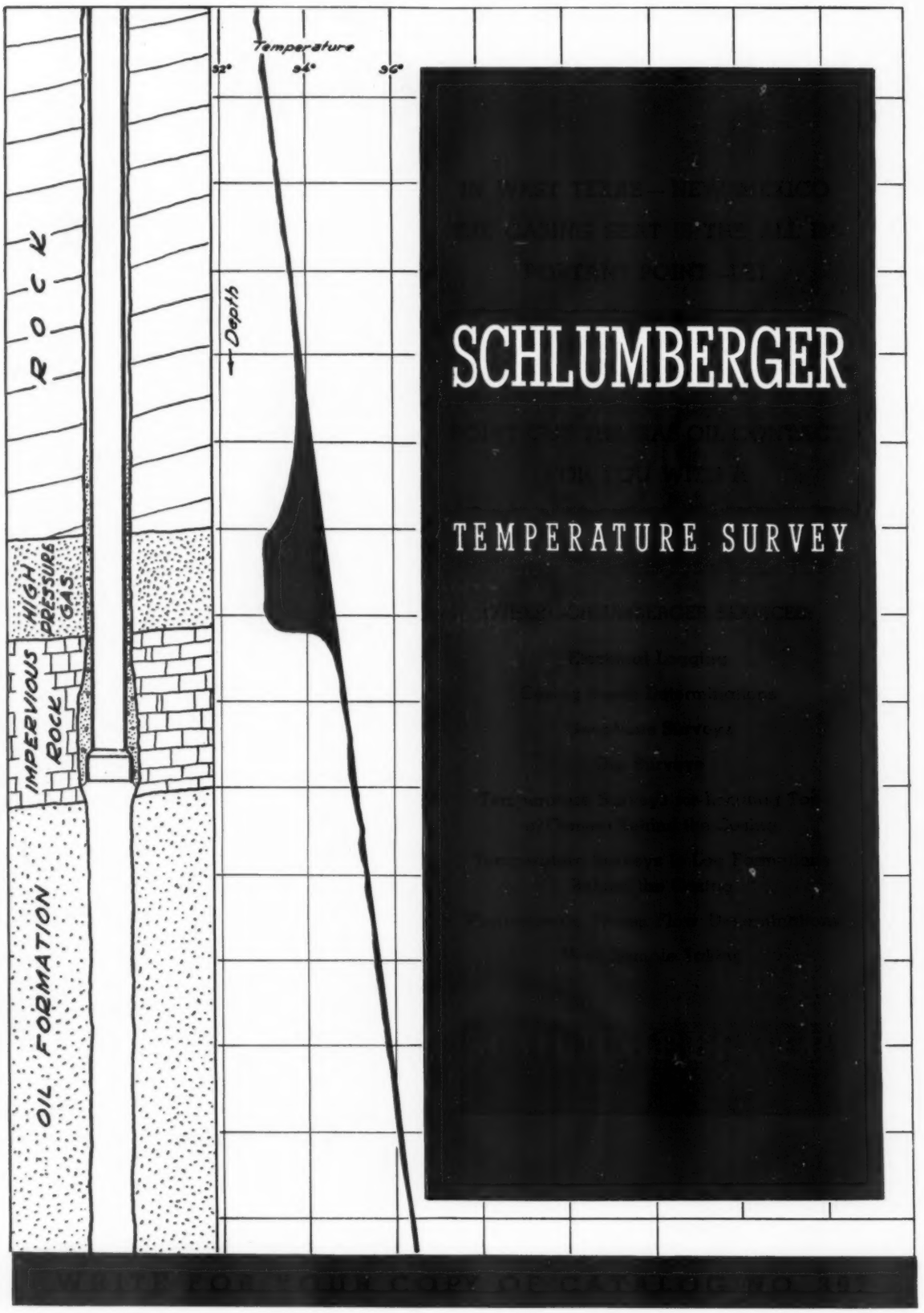
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34°
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Depth
ROCK
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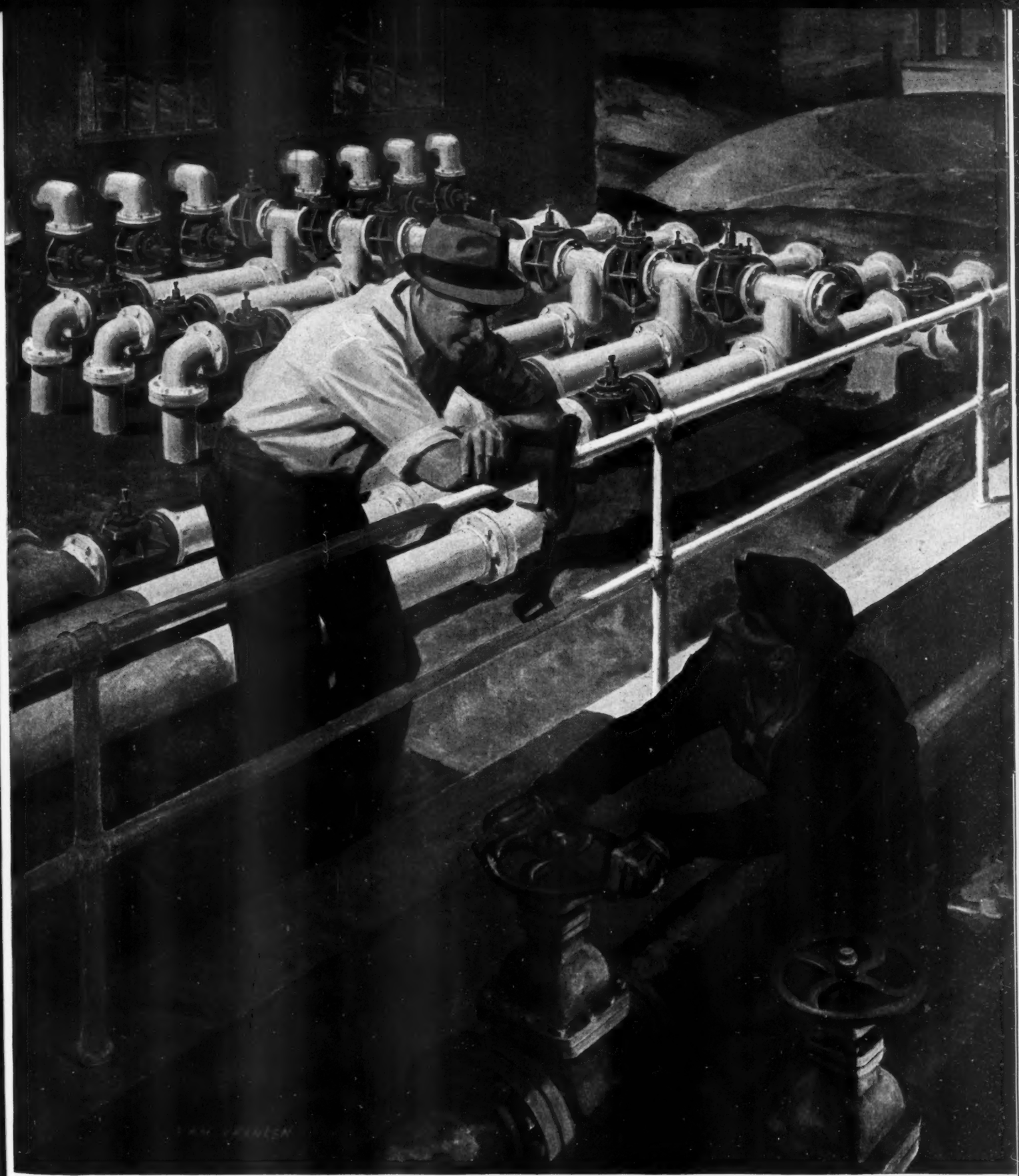
IMPERVIOUS ROCK
OIL FORMATION
SCHLUMBERGER
TEMPERATURE SURVEY



"Shucks, I can turn all mine off in 60 seconds . . . they're Nordstroms"

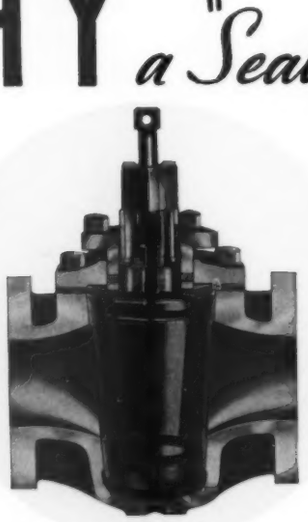
WHY *a plug valve?*

A plug cock is the oldest design of valve known. Simplest to operate. Quickest to open or close. Absence of exposed seats and threads, sliding plates and channels permit longer life.

WHY *a lubricated plug valve?*

A plug valve, particularly larger sizes and when handling high pressures or corrosive line contents, will stick and seize unless a means is provided for lifting the plug and for keeping its surfaces lubricated.

WHY *a "Sealdport" lubricated plug valve?*



In Nordstrom Valves a plastic lubricant is efficiently distributed over the entire bearing surfaces by means of the exclusive, patented "Sealdport" method of hydraulic lubrication. "Sealdport" lubrication forms a pressure seal substantially around the ports of the valve. There is no "break" or opening in this pressure seal where line contents can channel through. Internal and external leakage are prevented. Nordco lubricants are furnished in every desired consistency, having various lubrical and plastic properties. Years of research have resulted in a line of lubricants that are best adapted to each valve service. *(Please request Lubricant Manual.)*

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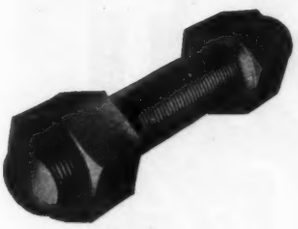
PATENTED "SEALDPORT" LUBRICATION

3 Steels you can depend on for high-temperature fastenings



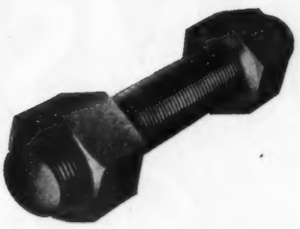
Supertemp

For highest temperatures and pressures. A chrome-tungsten steel developed and made exclusively by Bethlehem. Excellent all-round high-temperature properties.

When drawn to qualify for service at 1100 deg. F. this steel will show ultimate strength of about 90,000 lbs. per sq. in. at 900 deg. F., 75,000 lbs. per sq. in. at 1000 deg. F. and 45,000 lbs. per sq. in. at 1100 deg. F.

Drawing Supertemp for service at 1000 deg. F. results in higher strength at all temperatures. At 900 deg. F. strength exceeds 120,000 lbs. per sq. in. and at 1000 deg. F. is at least 100,000 lbs. per sq. in.

As stock of Supertemp, oil-quenched and drawn to approximate A.S.T.M. Class C material,* is always carried at our Lebanon Plant, we can make quick delivery on any size bolt, stud, bar, or pressure screw to these specifications, Class 2 thread fit. Slightly more time is required where Class 3 fit is called for, or when material must be drawn to other specifications.



S.A.E. 4140

For intermediate temperatures—up to 850 and 900 deg. F. A chrome-moly steel widely used in high-temperature work. Somewhat less expensive than Supertemp.

Drawing temperature to qualify for A.S.T.M. Class C material* approximately 1100 deg. F. Drawn at this temperature, will show ultimate strength of about 90,000 lbs. per sq. in. at 800 deg. F.; 73,000 lbs. at 900 deg. F.

S.A.E. 4140 cannot well be used at temperatures above 900 deg. F. At relatively low drawing temperatures, however, ultimate strengths exceed 160,000 lbs. per sq. in.

A very complete stock of bolts, studs, and pressure screws of S.A.E. 4140, oil-quenched and drawn to approximate A.S.T.M. Class C material, is on hand at our Lebanon Plant. Studs in diameters up to and including 2 inches; machine bolts up to 1¼ inch; all usual lengths, and Class 2 thread fit. Odd sizes, Class 3 fit, and other specifications made to order.

Mayari "A"

For intermediate temperatures—up to 850 and 900 deg. F. A chrome-nickel steel similar to S.A.E. 3140. Preferred by many for high-temperature work; priced same as S.A.E. 4140.

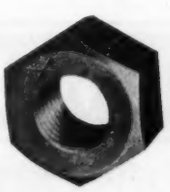
Drawing temperature to qualify for A.S.T.M. Class C material* approximately 1100 deg. F. Drawn at this temperature, will show ultimate strength of about 85,000 lbs. per sq. in. at 800 deg. F.; 70,000 lbs. at 900 deg. F.

Mayari "A" is not suitable for use at temperatures above 900 deg. F. At relatively low drawing temperatures, ultimate tensile strength will exceed 140,000 lbs. per sq. in.

Stock of Mayari "A," oil-quenched and drawn to approximate A.S.T.M. Class C material, is on hand at our Lebanon, Pa., Plant. We are therefore in an excellent position to make prompt deliveries on any size bolt, stud, and pressure screws to these specifications. Standard thread fit is Class 2; where Class 3 is necessary, there may be a slight delay in shipment.

*A.S.T.M. Specification for alloy-steel bolting materials for high temperatures (Spec. A-96-33, Class C, 2½ inches in dia. and under) calls for a tensile strength of 125,000; a yield of 105,000; elongation in 2 inches of 16%; reduction of area, 50%; Brinell hardness of 260 to 320.

* * *



Nuts for High-Temperature Fastenings—Bethlehem makes two types of nuts especially recommended for high-temperature service. The Bethlehem Treated Nut is a semifinished medium-carbon nut which meets Class 2 of the A.S.T.M. Specification A-194-36T. On test this nut has developed a stripping value of 105,000 lbs. per sq. in. at 1000 deg. F. Where a higher minimum Brinell than the 160 of the Treated Nut is desired, use the Bethlehem Oil-Quenched Nut. This nut, also semifinished, and medium-carbon, easily meets Class 2H Specification with its minimum "as finished" Brinell of 250, and will stand up under the battering of heavy wrenches. Both of these nuts are hot-forged.

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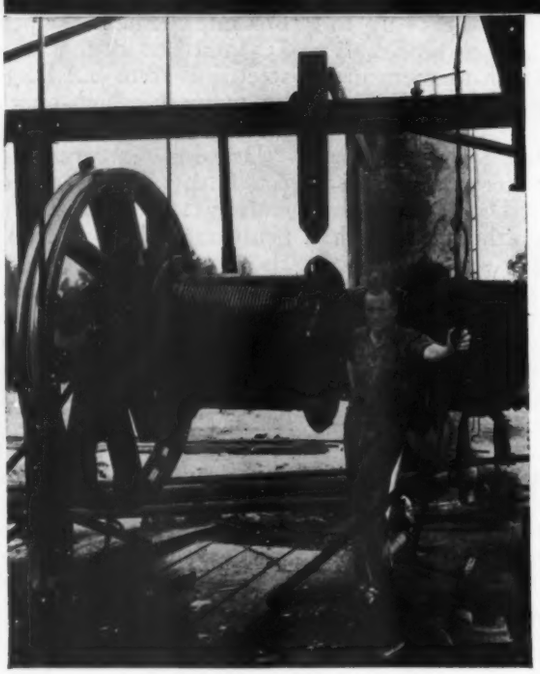

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Who Keep an Eye on Operating Costs

Drillers, who keep an eye on their service records, know that Williamsport's "Form-Set" wire line costs them less per operating hour.

Precision methods of manufacture and highest quality materials endow "Form-Set" wire lines with an extra long life and strength.

They wind smoothly on the drum and handle easily giving all-around satisfaction to the driller *and* the man who is responsible for keeping costs down. Write for the Oil Country Lines catalog. All sizes, quantities and grades of wire lines are available for any type of oil producing job.

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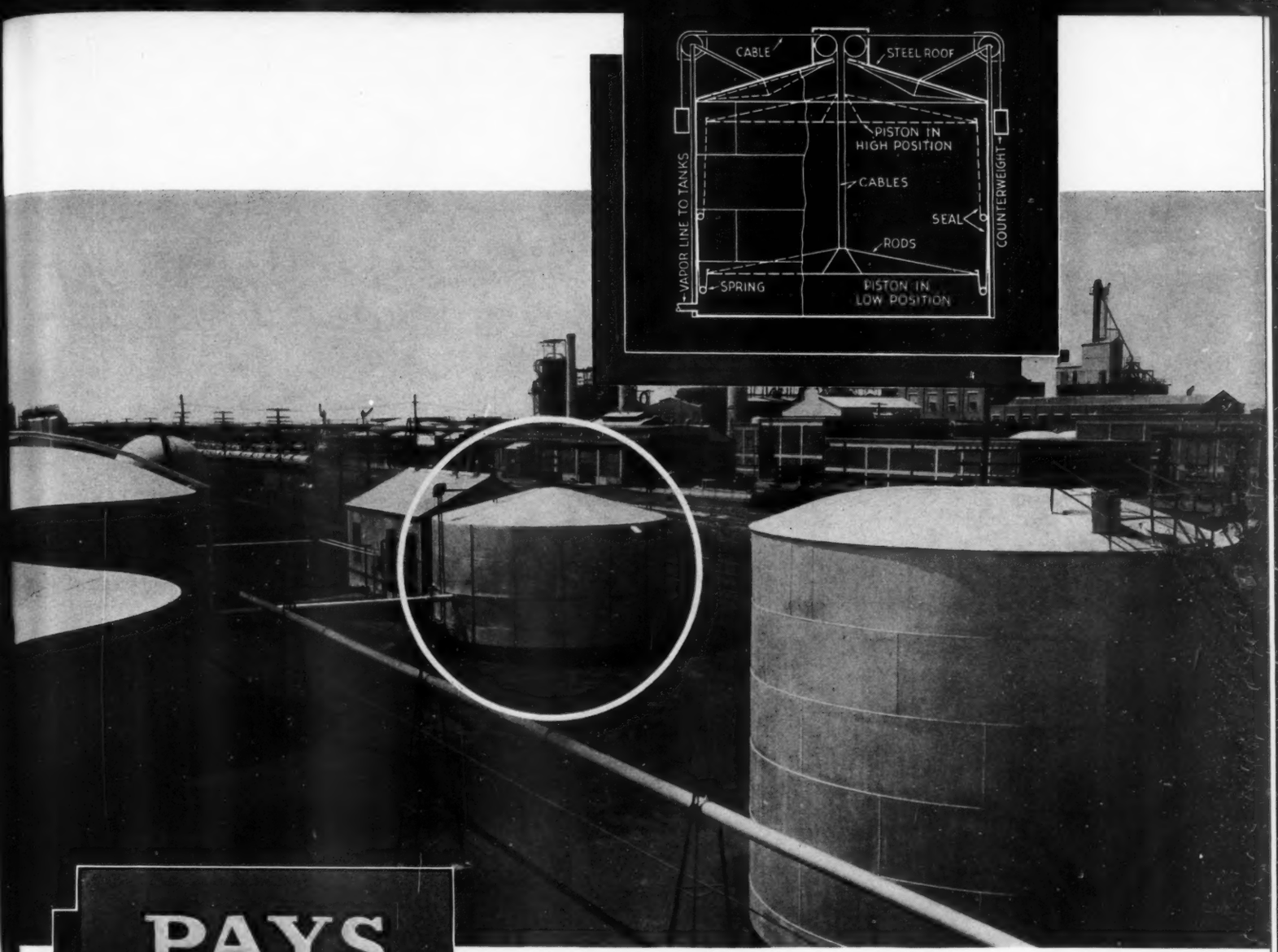

PAYS FOR ITSELF

THE Empire Oil & Refining Co. (now Cities Service Co.) had a problem. Naphtha used in a lubricating oil refining process at Ponca City, Okla., was disappearing at the rate of 750 barrels a month from the processing tanks. Because this loss resulted principally from the escape of hot naphtha vapor during transferring operations, a Wiggins Balloon was suggested as the means of stopping the loss.

Now in service for more than a year serving a total of seventeen tanks and a re-run unit, the Balloon has an official record of saving 8340 barrels of naphtha in twelve months—enough to more than pay for the installation complete.

The piston type of Balloon was selected for this job as a result of calculations showing that 20,000 cu. ft. of capacity would be sufficient. Where larger vapor space is required, the flat double-diaphragm type Balloon is supplied. For detailed information about this and other applications, address our nearest office.

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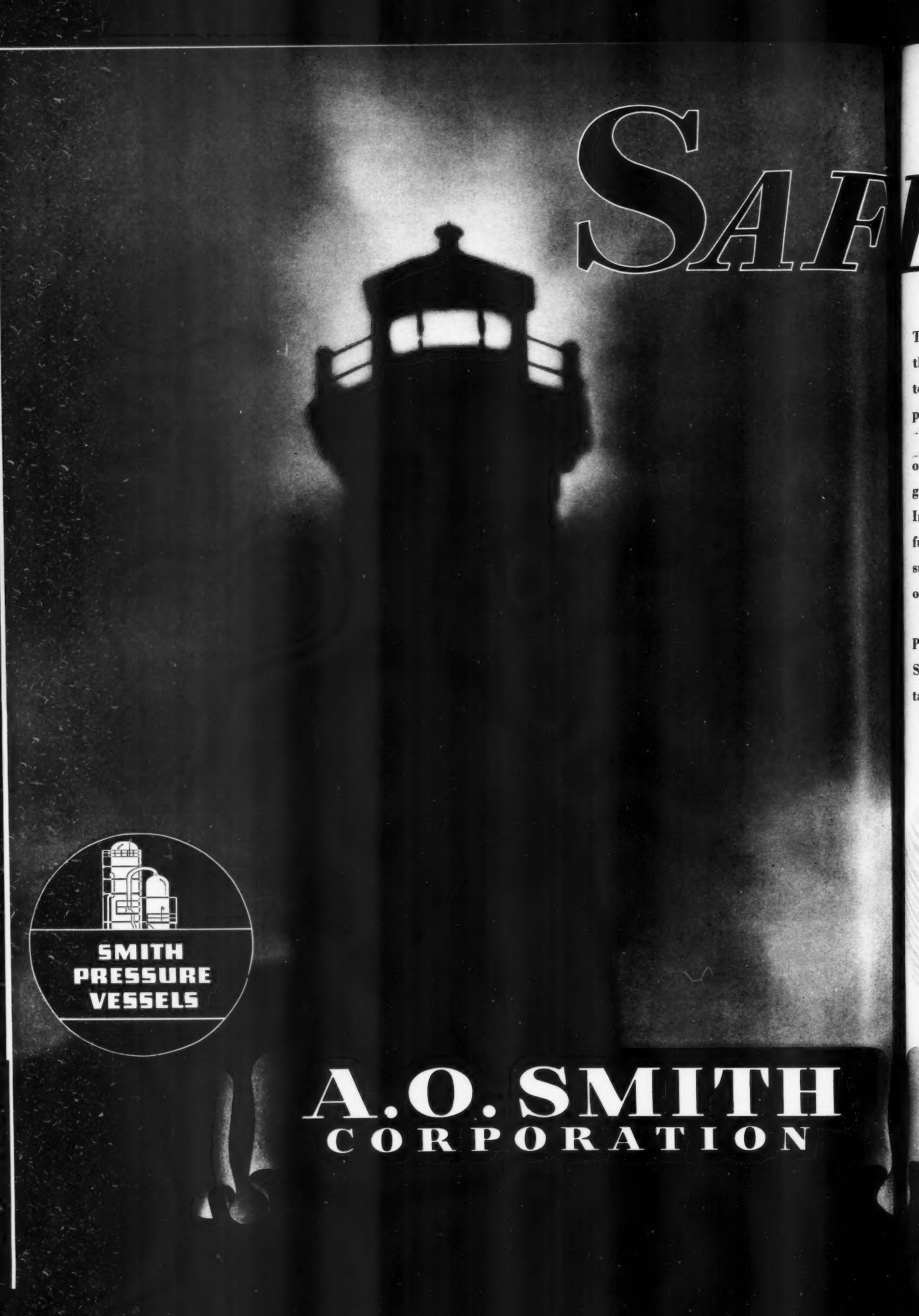
Birmingham	1536 North Fiftieth Street	Los Angeles	1423 Wm. Fox Building
Chicago	2128 Old Colony Building	Cleveland	2204 Rockefeller Building
Detroit	1514 Lafayette Building	New York	3347-165 Broadway Building

FABRICATING PLANTS in Birmingham, Chicago, and Greenville, Pa.

THE WIGGINS BALLOON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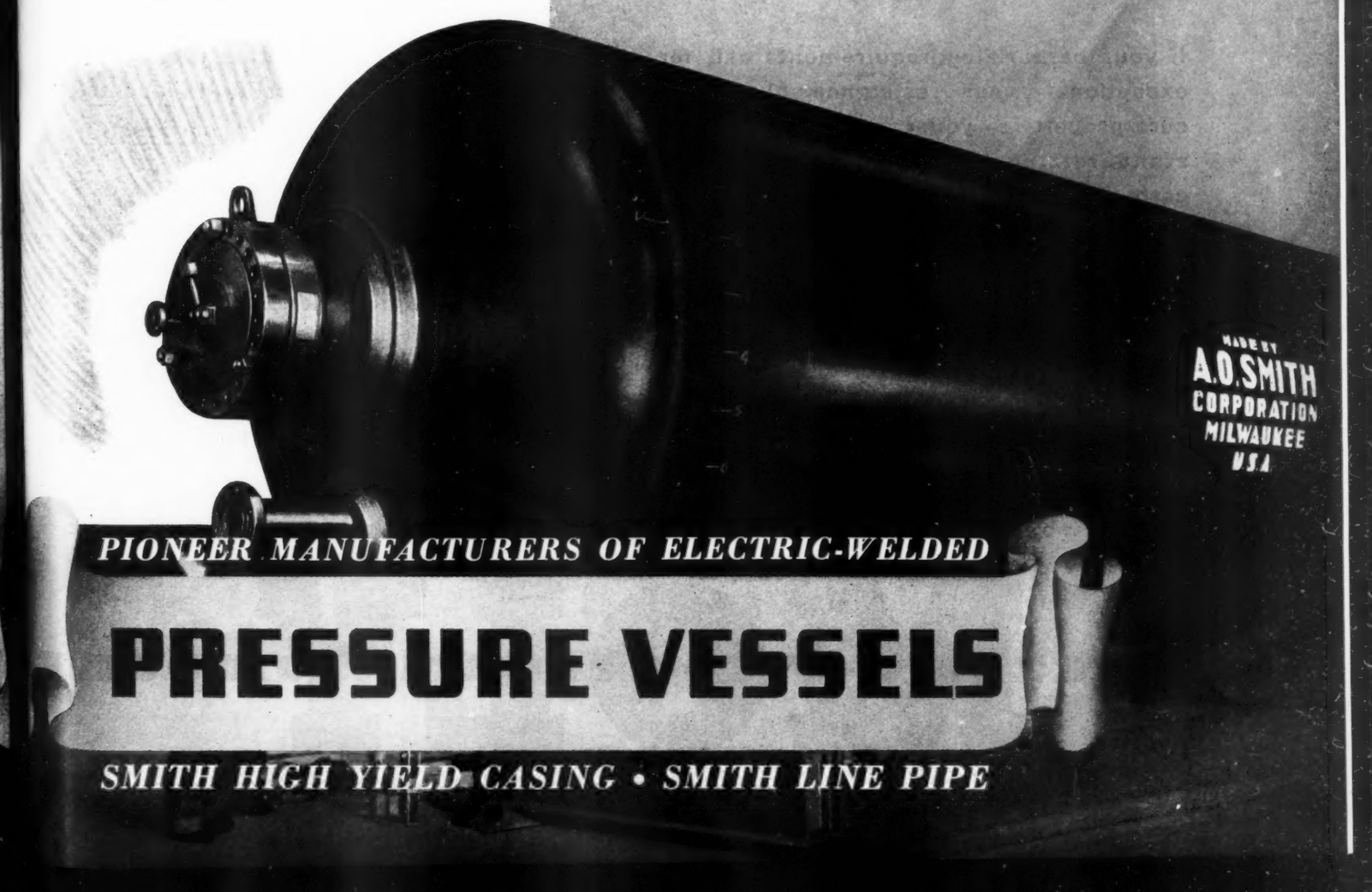
True, because it functions so perfectly, the navigator soon becomes accustomed to the "course-light" which guides and protects him.

In hundreds of refineries the world over, a similar tribute of being taken for granted is paid Smith Pressure Vessels. In hundreds of refineries, men who know fully of the high temperatures and pressures within, work calmly in the shadow of Smith Vessels.

These men can take the *safety* of Smith Pressure Vessels for granted because Smith engineering and manufacturing take *nothing* for granted.

Smith Pressure Vessels are made for any specified operating conditions of temperature and pressure—with or without corrosion-resisting lining and in sizes subject only to the limitations of transport.

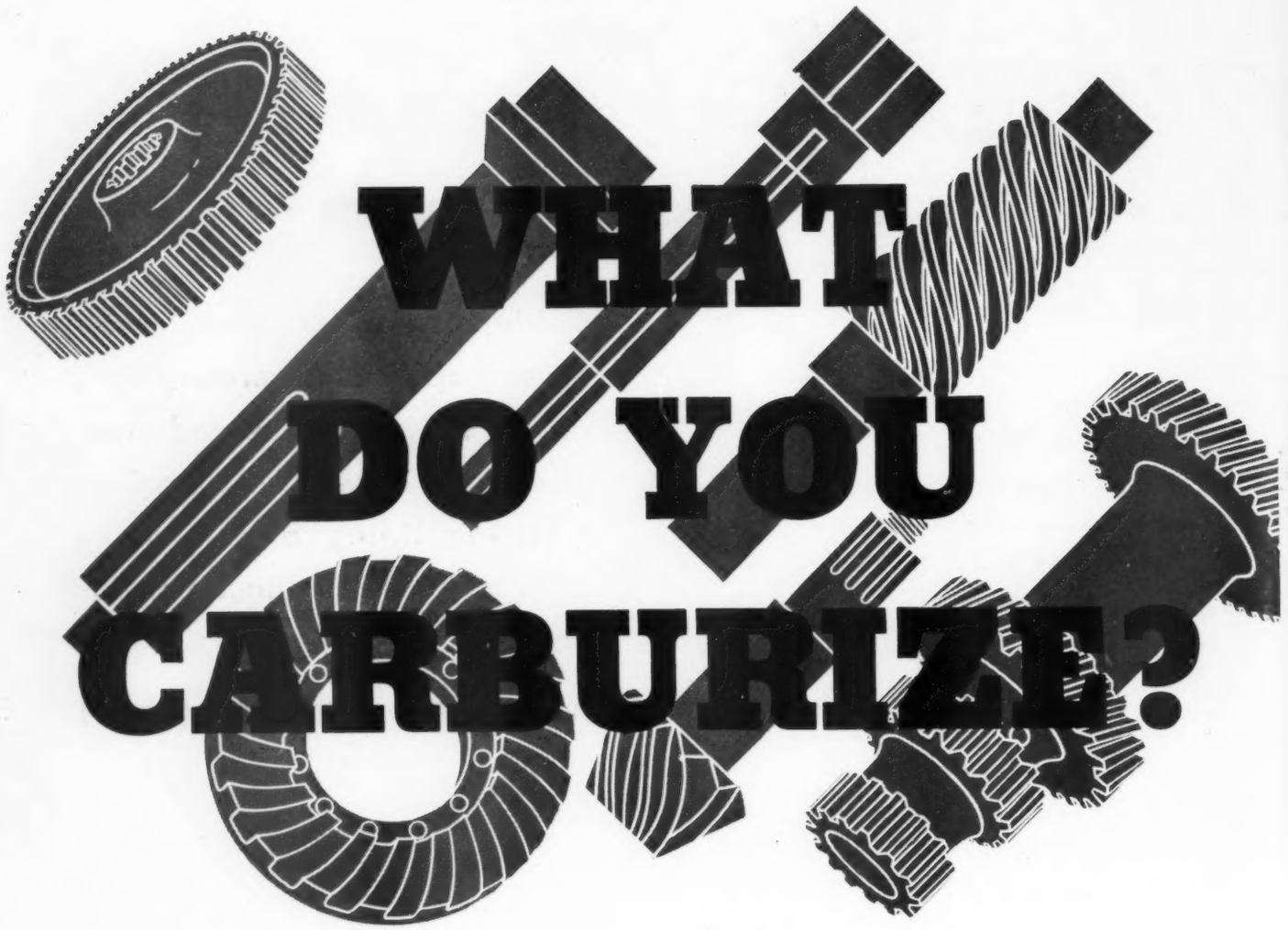
A. O. SMITH CORPORATION
MILWAUKEE, WISCONSIN
District Offices: New York, Cleveland, Chicago
Tulsa, Houston, Los Angeles



PIONEER MANUFACTURERS OF ELECTRIC-WELDED

PRESSURE VESSELS

SMITH HIGH YIELD CASING • SMITH LINE PIPE



WHAT DO YOU CARBURIZE?

If your carburizing requirements call for exceptional wear resistance plus good core properties—you can save money by standardizing on Chrome-Molybdenum carburizing steel.

This new carburizing steel has been developed as an answer to insistent demands for greater production economy in the face of rising costs.

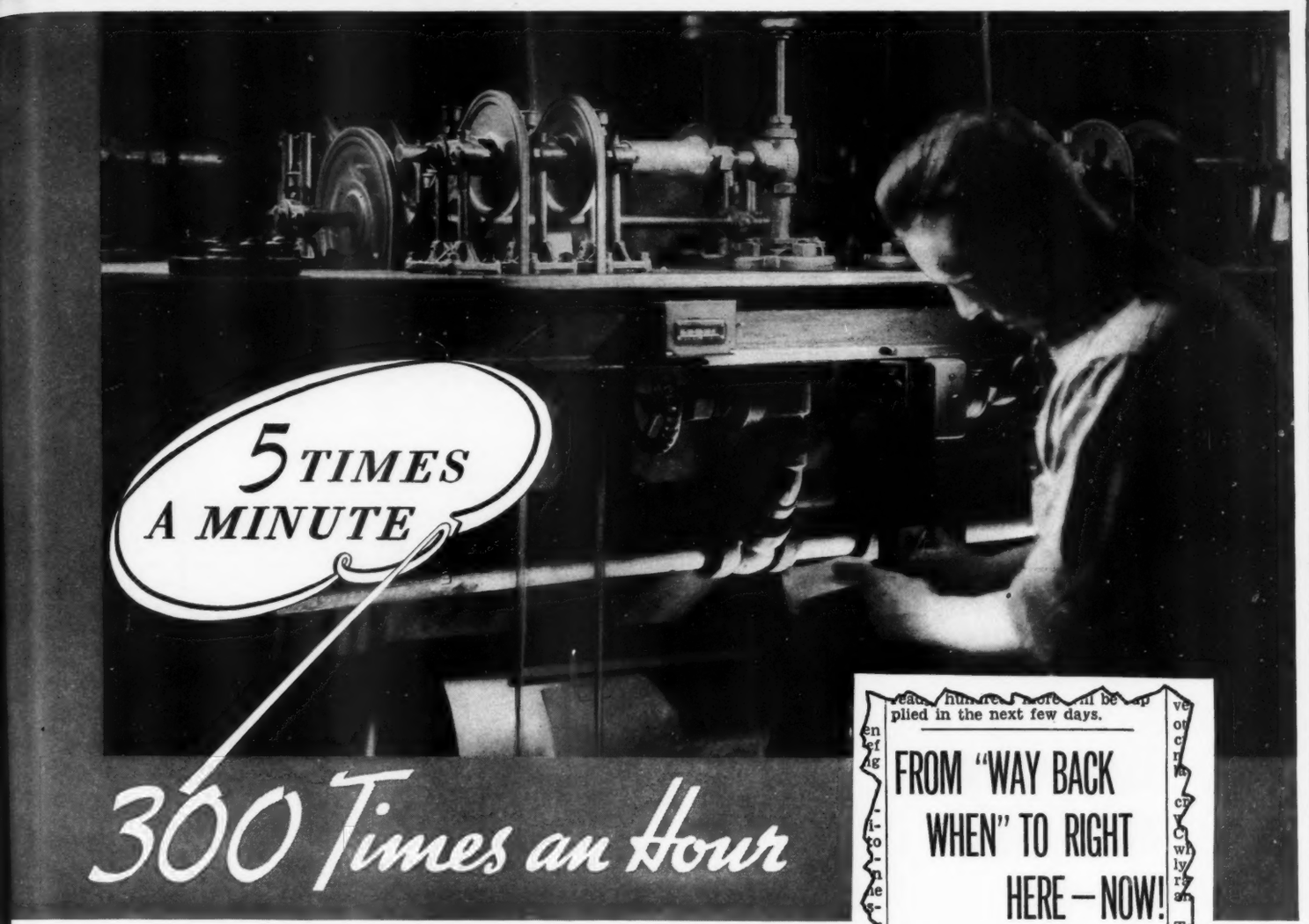
It carburizes under ordinary shop conditions with minimum, uniform distortion. It takes a very hard, wear-resistant case. It develops good core properties. It anneals to quick machining hardness. And—it costs less than any other existing successful alloy carburizing steel.

Chrome-Moly has already solved some difficult problems. It is being used for a wide variety of applications. It will pay to investigate it fully—as an effective means of cutting your carburizing costs. We will gladly furnish complete details. Climax Molybdenum Company, 500 Fifth Avenue, New York City.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

Climax Mo-lyb-den-um Company

MOLY



300 Times an Hour

OPEN, shut—open, shut. Ceaselessly, valves are opened and shut in a special "torture machine" at the Crane laboratories. Five times a minute . . . 300 times an hour . . . 2,400 times every eight-hour shift, until the stem gives up its life and the "post-mortem" adds to the vast body of Crane knowledge of valves.

Engineers tabulate the results and study the thread profiles and thread clearances of the valves when finally they are worn out. From this comes definite information showing how to make good valves better . . . and better valves the best for their type of service.

Crane has tested to destruction thousands of valves, seeking information with which to build still better valves. Crane meets the challenge of "new" valve problems with solutions based on 82 years of valve and piping experience. Look in your No. 52 and other Crane catalogs for the details regarding over 38,000 items, tested in the laboratory and proved on the job. Use them whenever you need valves, fittings, pipe or accessories. CranEquip for satisfaction.

FROM "WAY BACK WHEN" TO RIGHT HERE—NOW!

BRADFORD, PA., Aug. 16.—Crane made its first valves for the oil industry way back in the days of cable tools and donkey engines—when a driller got the "feel" of his bit by putting his hand on the cable. All valves then were cast iron—and the higher the pressure, the bigger the chunk of iron used.

Ever since then Crane has been in the midst of the exciting, far-reaching developments of America's most swiftly changing industry. Pioneers of drilling methods, pioneers of pipe line developments and of refinery practices have brought their piping problems to Crane for a sound solution.

Valve designs and valve materials have changed greatly—and swiftly since the early days. Cast iron has given way to steel—and steel in turn, to alloys. Crane has always kept at the forefront of progress—constantly and consistently pointing the way to improvements in valves, fittings and piping as each new step of development was reached.

Crane maintains now—as it has maintained longer and more extensively than anyone else in the valve industry—laboratories and a research staff to aid oil men in improving their practices. Bring your problems to us—we shall enjoy helping you.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO, ILL.

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, PLUMBING AND HEATING MATERIAL

HASTINGS · FIELD

BRAZORIA COUNTY TEXAS

as of June 15

21 · *Contract Rigs Running*

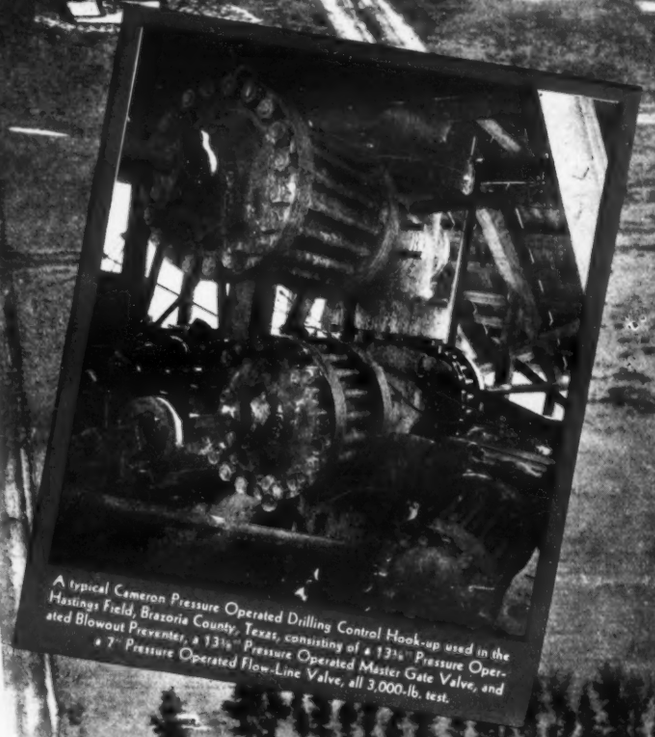
3 · *Company Rigs Running*

24 · TOTAL

and every rig is equipped with a CAMERON pressure operated drilling control hook-up!

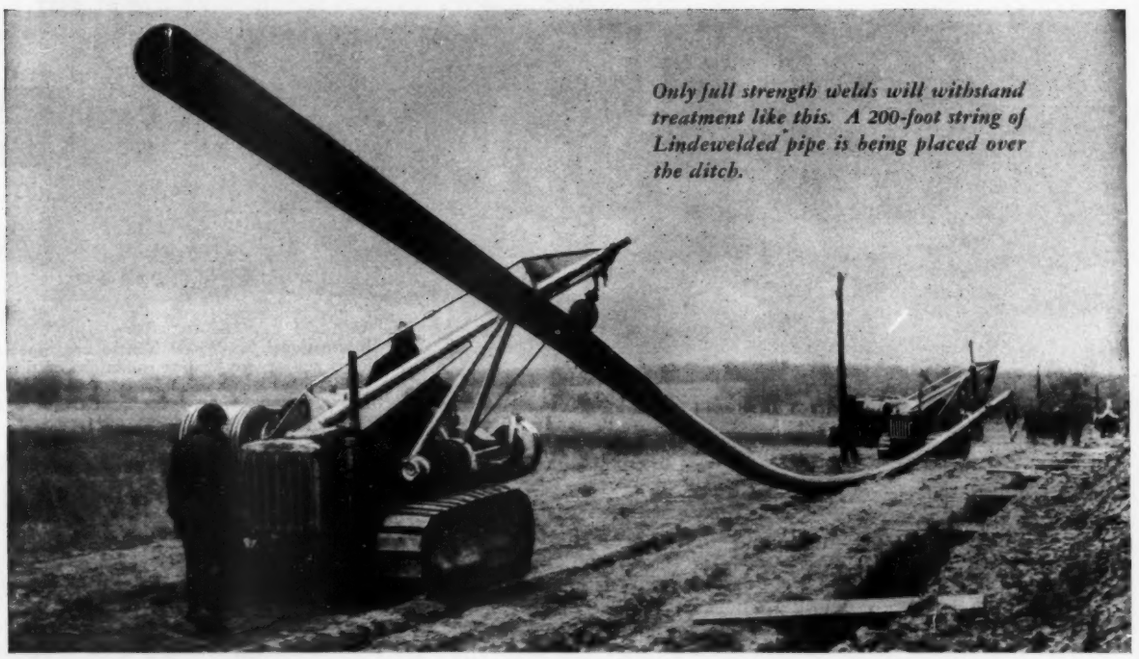
CAMERON IRON WORKS, Inc.

711 MILBY STREET HOUSTON, TEXAS



A typical Cameron Pressure Operated Drilling Control Hook-up used in the Hastings Field, Brazoria County, Texas, consisting of a 13¾" Pressure Operated Blowout Preventer, a 13¾" Pressure Operated Master Gate Valve, and a 7" Pressure Operated Flow-Line Valve, all 3,000-lb. test.

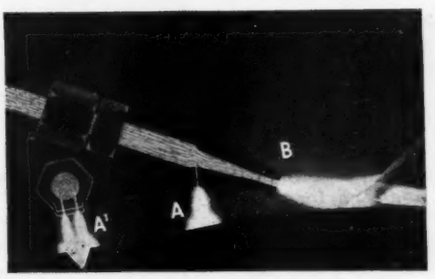
Strong, ductile pipe-line welds
made with Multi-Flame Lindewelding



Only full strength welds will withstand treatment like this. A 200-foot string of Lindewelded pipe is being placed over the ditch.

WITH Multi-Flame Lindewelding, you can produce welds that are as strong as the pipe itself, even when the pipe has a tensile strength up to 110,000 pounds per square inch. In this new technique of welding, the base metal is preheated before welding and postheated for slower cooling after welding. This exclusive feature of Multi-Flame Lindewelding makes the weld unusually ductile.

Multi-Flame Lindewelding is fast and economical, even under varied field conditions. A new booklet, "Lindewelding Pipe Lines," contains valuable information which can help you on your next pipe-line project. Write the Linde office near you for your copy. The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation, New York and principal cities.



A schematic cross section shows the Multi-Flame Lindewelding Head in action. The small flames, A, preheat the pipe while the main flame, B, melts the welding rod and postheats the weld. A' is a cross section view through the preheating flames, A.

Everything for Oxy-Acetylene Welding and Cutting

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES FROM UCC LINDE UNION CARBIDE

THE *New* INTERNATIONALS

International Six-Wheel Trucks are especially adapted to the loads and severe hauling conditions of the oil fields. They are available with either dual-drive or trailing axles. Other International sizes range from the Half-Ton unit up.

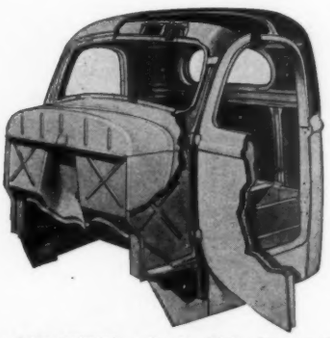
INTERNATIONAL HARVESTER produces no "yearly model" changes in trucks. A new line is not just a matter of the calendar with this Company. It is interested only in keeping International Trucks at top efficiency.

The International "C" models, now on the highways in many tens of thousands, are living evidence that this policy gives the truck user what he needs for hauling satisfaction. There have been no better trucks on the market, but *now* there are better trucks by far—these new Internationals.

The International reputation has advanced steadily on performance and long life, on unequaled nation-wide service, and on the truck user's final objective—ECONOMY.

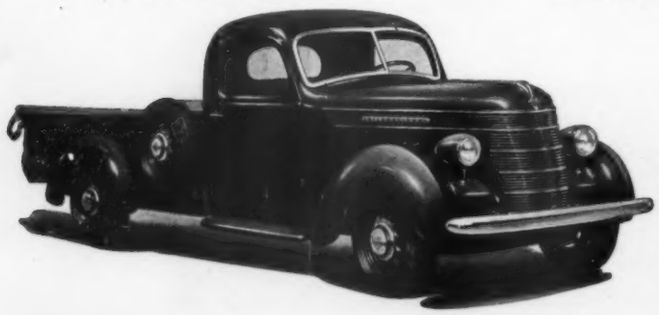
In the meantime, International has been constantly at work on engine and chassis design, load distribution and braking, increased power, fuel economy, and driver comfort. The resources of its engineering staff, its laboratories, its plants and proving grounds were centered in the development of a fundamentally better product. Today the many improvements are consolidated in this *completely new* line of trucks.

Today International Harvester offers truck users the finest value of the year, a product *engineered* to the moment and *styled* for public acceptance. These new trucks are on display at any International branch or dealer showroom.



Section of the ALL-STEEL cab—in ALL the new Internationals! The one-piece top, the sides, the back and cowl panels are welded into the complete cab frame. The one-piece heavy-gauge sill is an exclusive International feature. Rubber mountings stand guard wherever cushioning is needed.

INTERNATIONAL HARVESTER COMPANY
Harvester Building (*Incorporated*) Chicago, Illinois



Beautiful, streamlined International Pick-Up Trucks are available in Half-Ton to One-Ton capacities. Pick-Up bodies in three sizes: 76, 88, and 102 inches.

Interior of the roomy, well-appointed de luxe cabs in the new Internationals. Full-size door windows, sloping V-type windshield, and large rear window assure clear vision for safe driving. Deeply upholstered, adjustable seat and back cushions add to driver comfort.

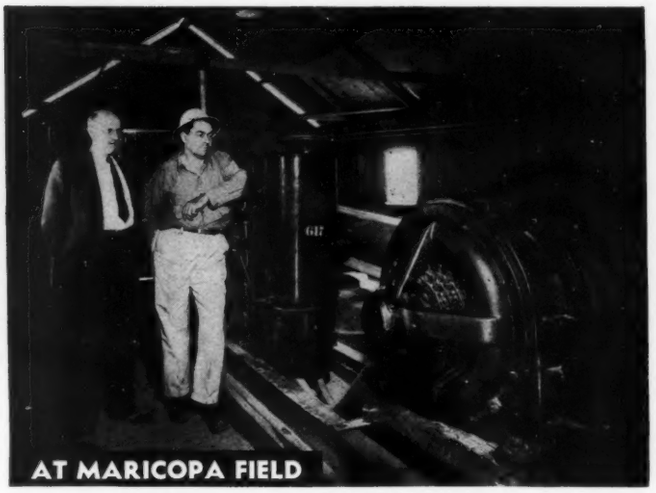
INTERNATIONAL TRUCKS

Reports of a G-E Oil-field Specialist

A. R. Tanner, Bakersfield

A REPORT ON BELRIDGE

Went over to the Belridge Field to help start up a new induction-motor-driven rig that will spud in within a few days. This twin-motor drive has drilled wells 8000 feet deep, speedily and economically, and has given very dependable service.



AT MARICOPA FIELD

Here is a picture taken while I was looking over one of our oil-well motors, installed near Taft, that has been driving a pumping rig for more than 23 years. This motor has the original windings, bearings, and collector rings.

FROM MOUNT POSO FIELD

Went out to the Mount Poso Field today to help start up a new pumper for an oil company. This company recently ordered 10 more units similar to this one, each equipped with a G-E motor. G-E motors in large numbers are giving dependable pumping service in the Mount Poso Field and vicinity.

FOR QUICK SERVICING

With so many wells in this section going on "powers," a portable electrically driven hoist is a sure timesaver in servicing. The Hopper Machine Works here in Bakersfield has been doing a brisk business in hoists equipped, like this one, with G-E motors. One truck handles so many wells that the cost per well is extremely low.

A 36 PER CENT RETURN

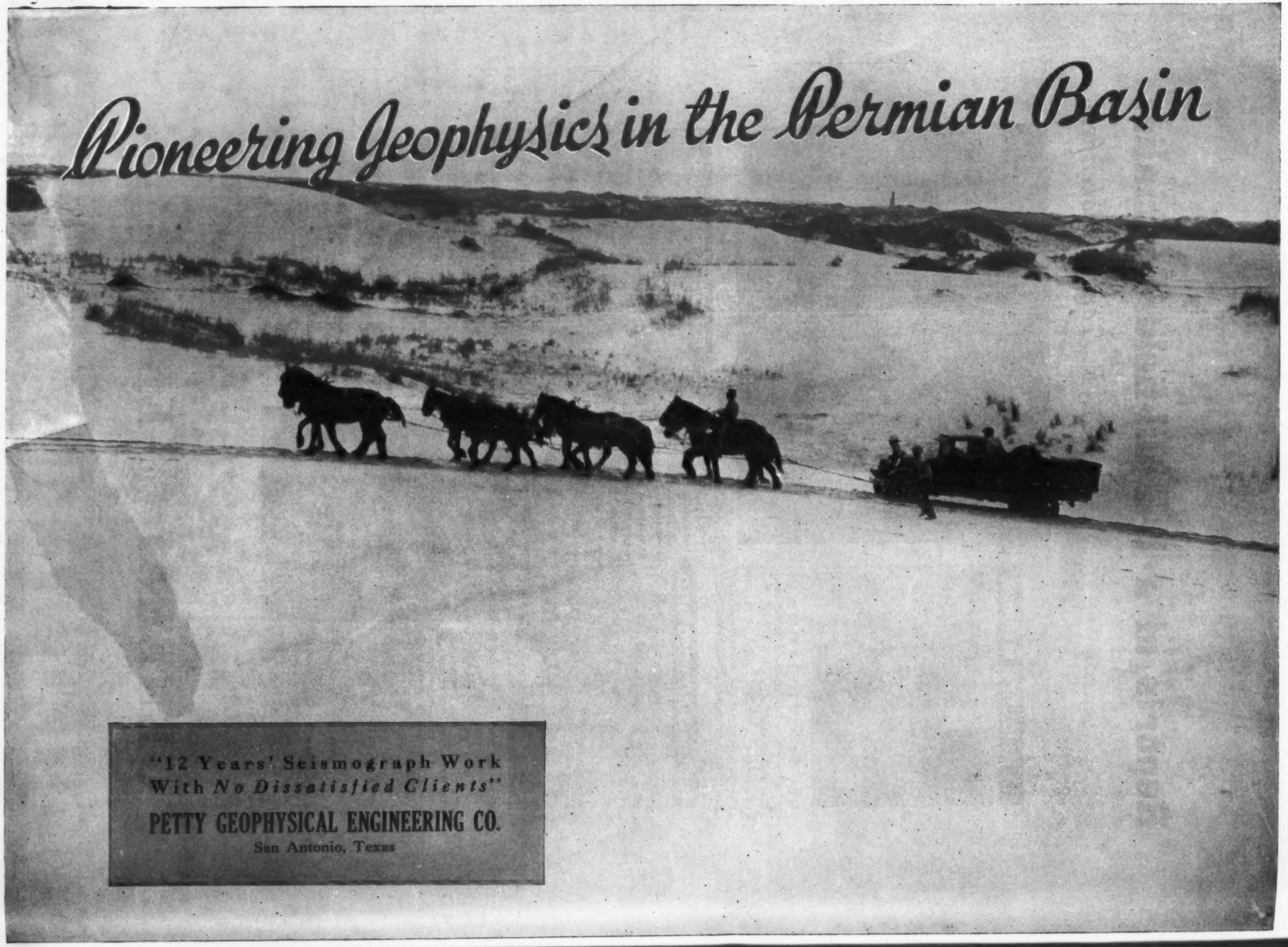
Yesterday, I dropped in to see an important refinery customer. While there, I learned what Jim Gallagher, our oil-industry specialist from San Francisco, did for the plant. Jim recommended a capacitor to improve the power-factor, and savings in power costs are paying a 36 per cent annual return on the price of the capacitor.

TO HELP YOU

THE pictures shown and the accompanying comments were sent us recently by A. R. Tanner, our oil-field specialist in Bakersfield, California. Remember that wherever your operations are located, you can get the services of a G-E oil-industry specialist. He'll be glad to help you get the equipment best suited to your requirements. Just call our nearest office. General Electric Company, Schenectady, N. Y.

011-173

GENERAL ELECTRIC


Pioneering Geophysics in the Permian Basin
"12 Years' Seismograph Work
With *No Dissatisfied Clients*"
PETTY GEOPHYSICAL ENGINEERING CO.
San Antonio, Texas

WE *still* SAY, "THERE'S NO ECONOMICAL SUBSTITUTE FOR AXELSON PRODUCTS"

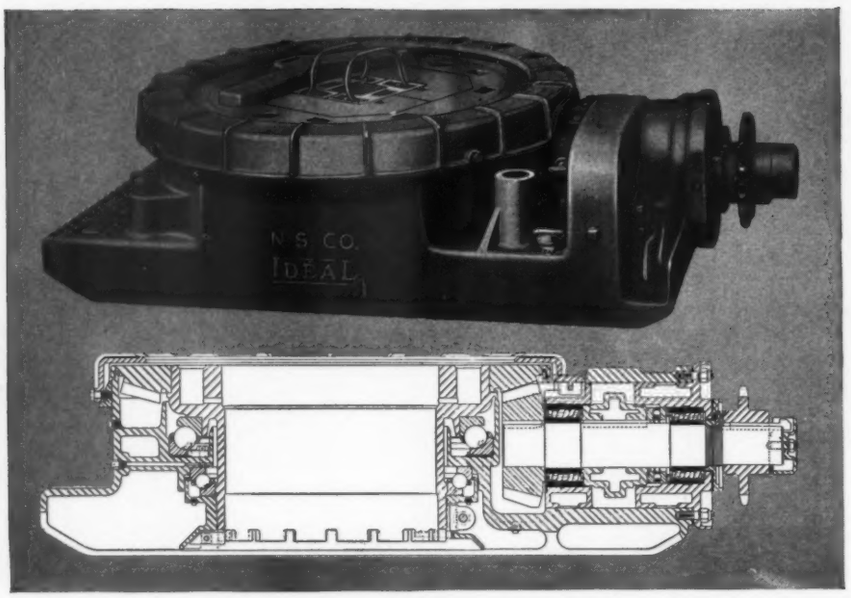
MANUFACTURERS SINCE 1882

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

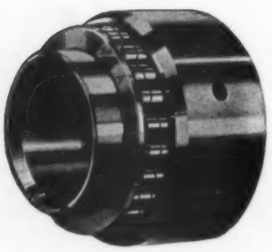
Axelson Manufacturing Company, P. O. Box 710, Vernon Station, Los Angeles • St. Louis • 50 Church Street, New York • Tulsa
Mid-Continent and Eastern Distributor: Frick-Reid Supply Corp. • *Rocky Mountain Distributor:* Great Northern Tool & Supply Co.

DEEP WELL PLUNGER PUMPS **AXELSON** SUCKER RODS

BEARINGS
that thrive on
HARD USAGE



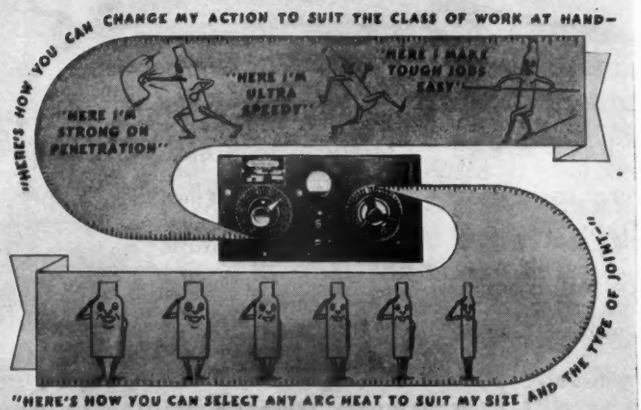
● Note the husky Hyatt Roller Bearings on the drive of this **IDEAL ROTARY MACHINE** built by National Supply Company, Torrance, California. No wonder these dependable and economical units are doing such a fine job of deep well drilling everywhere.



In the drive for more and more production, machinery is being geared up to punishing speeds and loads. Wherever power, load, and speed meet... bearings are on the *spot*. Yet stresses and strains that would lick ordinary bearings, are mere "set-ups" for Hyatt Roller Bearings.

In keeping pace with the demands of today, Hyatts are setting new standards of operating performance and economy. Power is saved, maintenance is saved, and wear is eliminated. In any place where the going is tough, remember Hyatts are equal to it. Hyatt Bearings Division, General Motors Corporation, Newark, Detroit, San Francisco. Hyatt Roller Bearings Sales Company, Chicago and Pittsburgh.

HYATT *Roller Bearings*


"HERE'S HOW YOU CAN CHANGE MY ACTION TO SUIT THE CLASS OF WORK AT HAND—
"HERE I'M STRONG ON PENETRATION"
"HERE I'M ULTRA SPEEDY"
"HERE I MAKE TOUGH JOBS EASY"
"HERE'S HOW YOU CAN SELECT ANY ARC HEAT TO SUIT MY SIZE AND THE TYPE OF JOINT—"

"Tough Welding Jobs are Easier and All Welding is 15% to 20% Faster with the New *'Shield-Arc SAE'*—

"For the sake of lower welding costs, use us electrodes with this new Lincoln welder. With its Dual *Continuous* Control, you can tune in the right TYPE of arc as well as the right amount of arc heat for every job. It's as simple as a radio.

"For instance, for the really *tough* jobs, you can get an arc with lots of 'knee action.' It gives us the urge to do some fancy stepping on jobs like these:

Welding in strong wind.	High tensile steels.
Welding in crowded quarters.	Manganese steel.
Industrial piping.	Tool steel.
Pipe line welding.	Sheet metal.
Stainless and chrome steels.	Aluminum.

Bronze, brass, copper.

"Then try us on the general run of welding jobs and we'll show you the fastest stepping and the best welding you ever saw.

"Yours for a wider use of welding and lower welding costs,

"FLEETWELD ROD"

—Spokesman for all progress-minded welding electrodes and emissary of

THE LINCOLN ELECTRIC COMPANY

Largest Manufacturers of Arc Welding Equipment in the World

THE LINCOLN ELECTRIC CO., Dept. N-413, Cleveland, Ohio

My welding application is_____

How can the "SAE" do it faster?

☐ Send a free copy of Bulletin 412 giving details about the new *"Shield-Arc SAE"* welder.

Name _____ Position _____

Company _____

Address _____

City _____ State _____

LINCOLN "SHIELD-ARC SAE"

THE WELDER WITH DUAL *CONTINUOUS* CONTROL

DM STILL TUBES

★

FOR LONG LIFE
At Moderate Cost

Where you must have creep strength and pressure resistance beyond the capacity of carbon steel tubes but where the expense of high chromium alloys is not justified, DM Tubes will solve your problem. They will provide the necessary protection at a cost that represents a real economy.

DM Tubes possess greater creep strength than any other low alloy tubes plus excellent oxidation and corrosion resistance.

Judging by the experience of DM Tube users during the last four years you can reasonably expect at least twice the life of carbon tubes under similar service conditions. May we figure on your requirements?

GOOD WILL BASED ON GOOD STEEL

TIMKEN STEEL AND TUBE DIVISION
THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

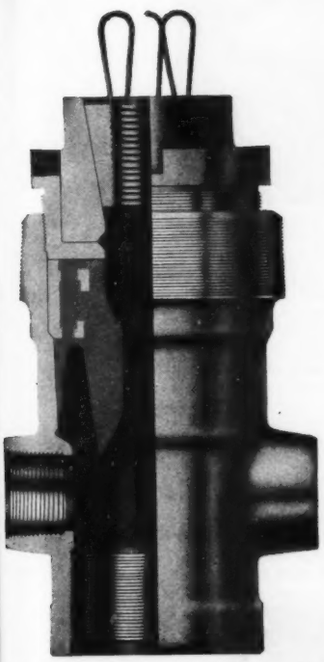
Manufacturers of Timken Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; Timken Alloy Steels and Carbon and Alloy Seamless Tubing; Timken Rock Bits; and Timken Fuel Injection Equipment.

TIMKEN
SEAMLESS STEEL TUBES

DREADNAUGHT

Stripper TUBING HEADS

FOR TUBING A WELL UNDER PRESSURE SAFELY--QUICKLY

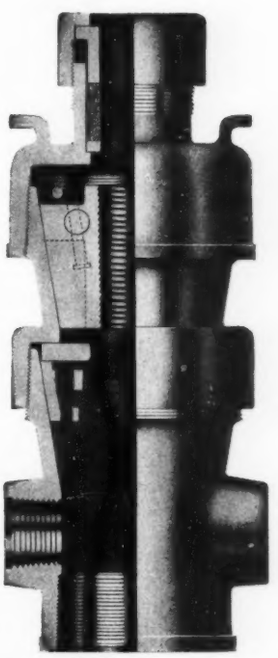


The Type "PX-65" Stripper Tubing Head permits running and pulling tubing where well pressure does not exceed 1,000 pounds. This head is also available with a stuffing box above the slips for the same pressure, and for 3,000 and 4,000 pounds test pressure with a split steel bushing which fits over and between the rubber and the tubing to reinforce the rubber.

Dreadnaught Stripper Tubing Heads are designed to permit running and pulling of tubing under pressures ranging up to 2,000 pounds without the use of blowout preventers. A stripper rubber provided in these heads safely seals in well pressure, yet readily passes pipe collars. Made of the finest rubber available and moulded around solid steel rings, this packing element will outlast conventional rubber strippers due to the fact that it is under stress only to the extent of the well pressure and while tubing is being run or pulled. The entire weight of the tubing string is transmitted to the body of the tubing head through the threaded connection between the bonnet, or slip bowl bushing, and body of the head . . . none of this weight is supported by the rubber itself. As well pressure builds up back of the packoff, the rubber tightens its seal around the pipe.

Dreadnaught Stripper Tubing Heads are available in two types, the basic principle of design in each being somewhat the same, as shown in the accompanying illustrations. Both types are available with an auxiliary stuffing box above the slips, if desired, to hold well pressure in event the rubber fails due to deterioration.

Write for fully descriptive folder.



The Type "PX-23SB" Stripper Tubing Head is designed to permit running and pulling tubing where well pressure does not exceed 1,000 pounds. Stuffing box provided above the slips also seals in 1,000 pounds well pressure. This head is also available for 1,000 pounds working pressure without stuffing box above slips, being designated as Type "PX-23S".

BEAUMONT IRON WORKS COMPANY

Beaumont, Houston, Dallas, Longview and Odessa, Texas; Tulsa, Oklahoma

DNT

"Selling Through Frick-Reid Stores Everywhere"

THERMAL

Natural gases and refinery gases now being produced in the United States contain potential production of additional high antiknock motor fuel estimated conservatively at over 100,000,000 bbls. a year.

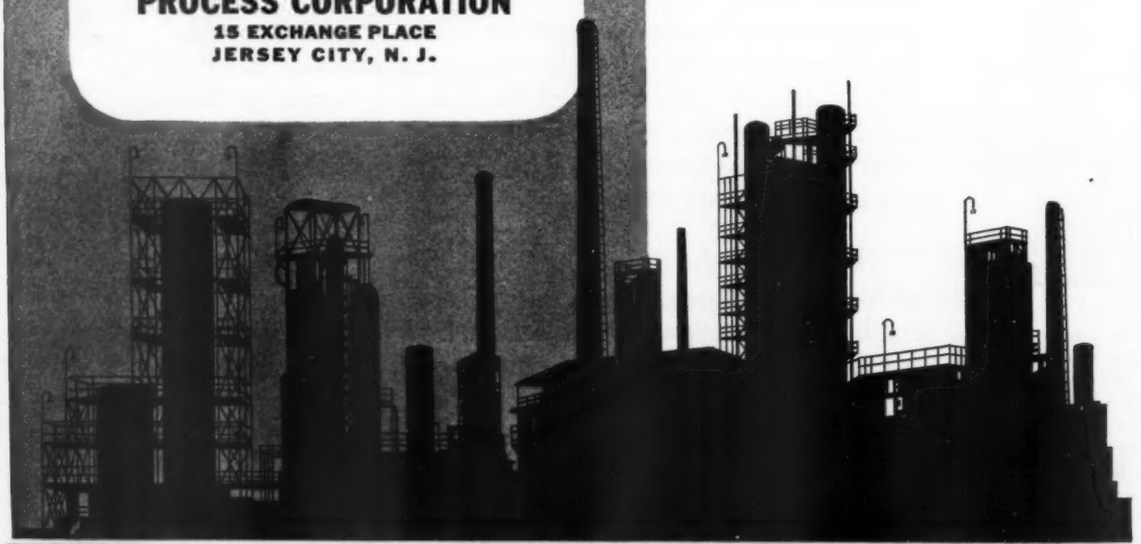
This tremendous source of additional motor fuel can be tapped by the use of the Thermal Polymerization Process which is applicable to saturated as well as unsaturated hydrocarbons.

Plants whose sources of charging stocks include refinery by-product gases, natural gases, or both, should investigate the advantages of Thermal Polymerization Units through this organization or its agent, The M. W. Kellogg Company.

Licenses granted under United States and Foreign Patents by

THE POLYMERIZATION PROCESS CORPORATION
15 EXCHANGE PLACE
JERSEY CITY, N. J.

100,000,000 bbls. of High Grade Antiknock Gasoline Without Increasing Crude Production 1 bbl.



POLYMERIZATION

PAGE

Hi-Tensile "C" Shielded Arc Electric Welding Electrodes are real "all position" rods

● Page Hi-Tensile "C" produces sound welds in any position—overhead, vertical or horizontal. It is easy to handle in crowded quarters. It permits high speed welding with low spatter or slag loss . . . equally good for production or shop work.

Welds made with Hi-Tensile "C" comply with the most rigid requirements. They meet tests of 65,000 to 75,000 pounds for tensile strength. They pass specifications for 20 to 30 per cent elongation, impact resistance of 30 to 70 foot pounds and fatigue resistance of 28,000 to 32,000 pounds per unit.

Like all Page Wires, Hi-Tensile "C" Electrodes are shop-tested. You can be sure of their uniformity and excellence.

Your local Page distributor carries an ample supply of Hi-Tensile "C" electrodes. He also has other Page Welding Wires . . . a complete line that meets every welding requirement. If you have a welding problem call on Page.

PAGE STEEL & WIRE DIVISION
AMERICAN CHAIN & CABLE COMPANY, Inc.
MONESSEN, PENNSYLVANIA
In Business for Your Safety

BUY ACCO QUALITY

A FEW OF THE 137 AMERICAN CHAIN & CABLE INDUSTRIAL PRODUCTS

AMERICAN CHAIN DIVISION
(DOMINION CHAIN COMPANY, Ltd., in Canada)
Weed Tire Chains • Welded and Weldless Chain • Malleable Castings • Railroad Specialties

AMERICAN CABLE DIVISION
Tru-Lay Preformed Wire Rope • Tru-Loc Processed Fittings • Crescent Brand Wire Rope Tru-Stop Brakes

ANDREW C. CAMPBELL DIVISION
Abrasive Cutting Machines • Floformers Special Machinery • Nibbling Machines

FORD CHAIN BLOCK DIVISION
Chain Hoists • Trolleys

HAZARD WIRE ROPE DIVISION
Green Strand Wire Rope • "Korōdless" Wire Rope • Preformed Spring-Lay Wire Rope • Guard Rail Cable

HIGHLAND IRON & STEEL DIVISION
Wrought Iron Bars and Shapes

MANLEY MANUFACTURING DIVISION
Automotive Service Station Equipment

OWEN SILENT SPRING COMPANY, Inc.
Owen Cushion and Mattress Spring Centers

PAGE STEEL AND WIRE DIVISION
Page Fence • Wire and Rod Products Traffic Tape • Welding Wire

READING-PRATT & CADY DIVISION
Valves • Electric Steel Fittings

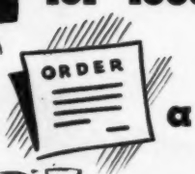
READING STEEL CASTING DIVISION
Electric Steel Castings, Rough or Machined

WRIGHT MANUFACTURING DIVISION
Chain Hoists • Electric Hoists and Cranes

ACCO

PAGE *Welding* WIRE

A Shot in the dark

EVEN A SHARPSHOOTER **has a tough time hitting the target** **if he can't tell where it is.** **That's the reason Lane-Wells developed accurate instruments** **for locating their gun-perforator in the casing. If you order** 

a well gun-perforated at 4500 feet, the Lane-Wells crew

shoots **at that level. There is no possibility of premature firing**

because the percussion-proof cartridges **are electrically controlled from the surface** **Lane-Wells safety set-up includes complete liability insurance**

against damage to property and life. If it's results **you're looking for, call in a Lane-Wells crew**

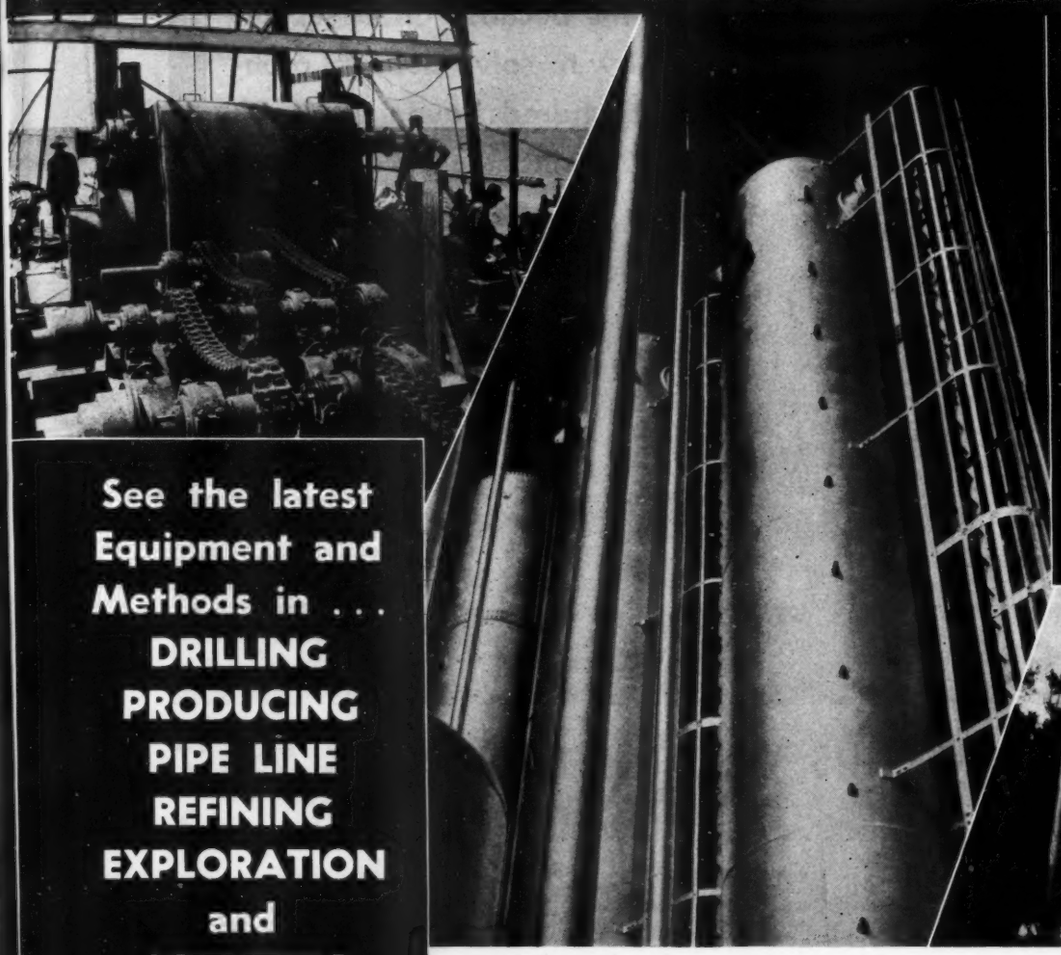
Other Lane-Wells Products and Services include:

Liner Hangers, Anchor Formation Packers, Rat-Hole Packers, Well Washers, Strata-Graph and Lo-Kate-It Services (outside of California, under license from Oil Well Water Locating Company.)

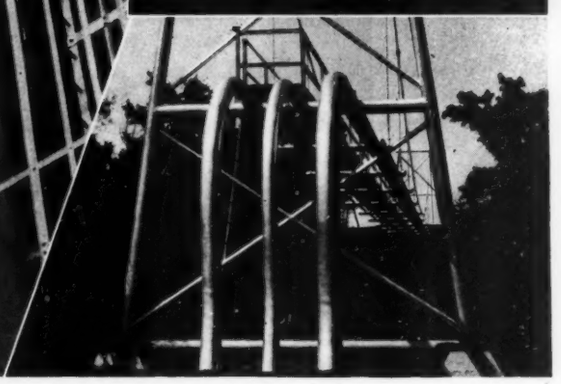
Tomorrow's Tools Today

Gun Perforator Service

Attend the World's First, Oldest, Greatest Oil Show



TULSA
OKLA. U. S. A.
MAY 14-21
1938



See the latest Equipment and Methods in . . .
DRILLING
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of the Petroleum Industry

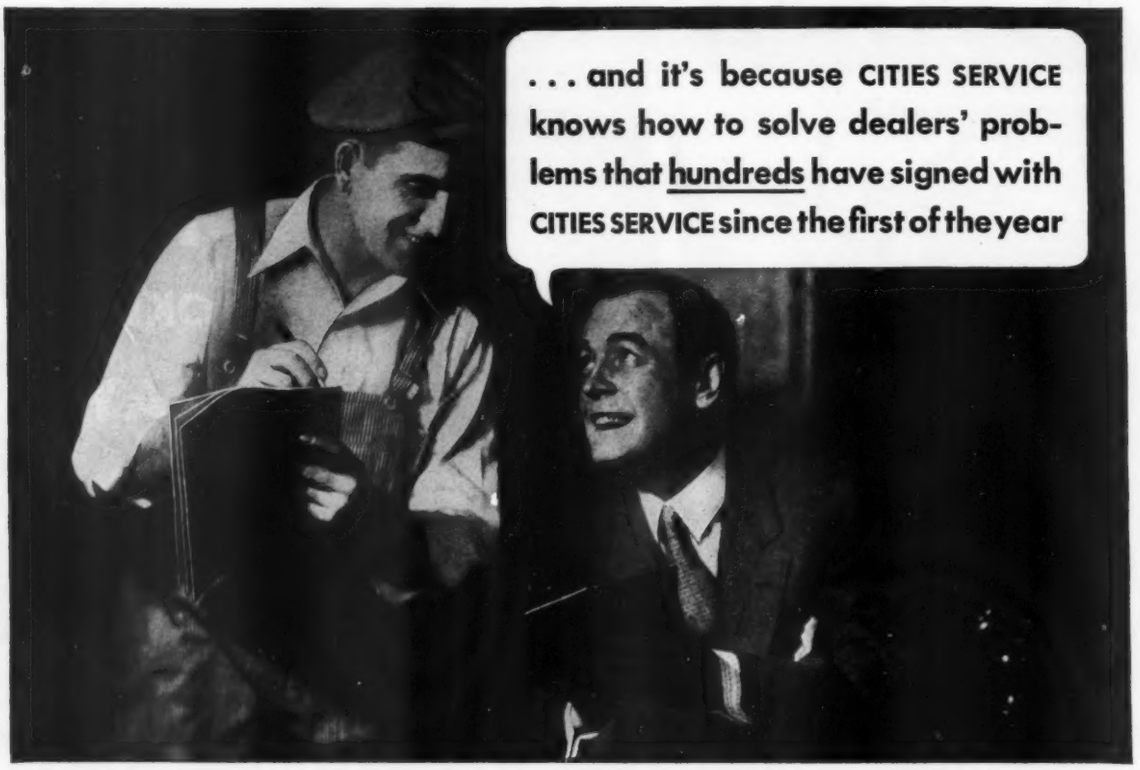
The next International Petroleum Exposition will be held in Tulsa, Okla., U.S.A., May 14-21, 1938. Founded in 1923, this is the original oil show and the greatest exposition in the world devoted to a single industry.

The latest equipment, methods and improvements which science, engineering and practical experience have developed in the petroleum industry in recent years, will be displayed, demonstrated and discussed. From aerial photography, seismograph and core drill, to portable rotary drilling equipment, modern pumping units; the latest refining methods and pipe line equipment will be here for your inspection. Plan now to attend the Tulsa oil show and visit adjacent production, refining and pipe line and scientific operations.

For complete information, write,

WM. B. WAY, General Manager
INTERNATIONAL PETROLEUM EXPOSITION
Tulsa, Oklahoma

INTERNATIONAL PETROLEUM EXPOSITION


. . . and it's because CITIES SERVICE knows how to solve dealers' problems that hundreds have signed with CITIES SERVICE since the first of the year

CITIES SERVICE OFFERS YOU THE INDUSTRY'S MOST UNIQUE SALES PLAN . . . A PROVED PROFIT BUILDER

THERE'S a mighty good reason why hundreds of new dealers have signed with Cities Service since the first of the year. Cities Service has proved to them that it can solve their problems . . . increase their gallonage . . . win new customers . . . build bigger profits.

No other oil company offers the complete, distinctive plan Cities Service offers to dealers. It is a plan that makes you the most talked-of dealer in the neighborhood . . . a plan backed by a record of proved success.

Ask to see this plan which is explained in full in the Cities Service PROFIT ImPROVER. Write, wire or phone today to the Cities Service marketing company nearest you. Or mail coupon at the right. Don't struggle hopelessly with your problems any longer. Let Cities Service help you as it has helped thousands of other dealers. Act today.

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Gentlemen: Without obligation on my part, please send representative to show me the plan outlined in your PROFIT ImPROVER.

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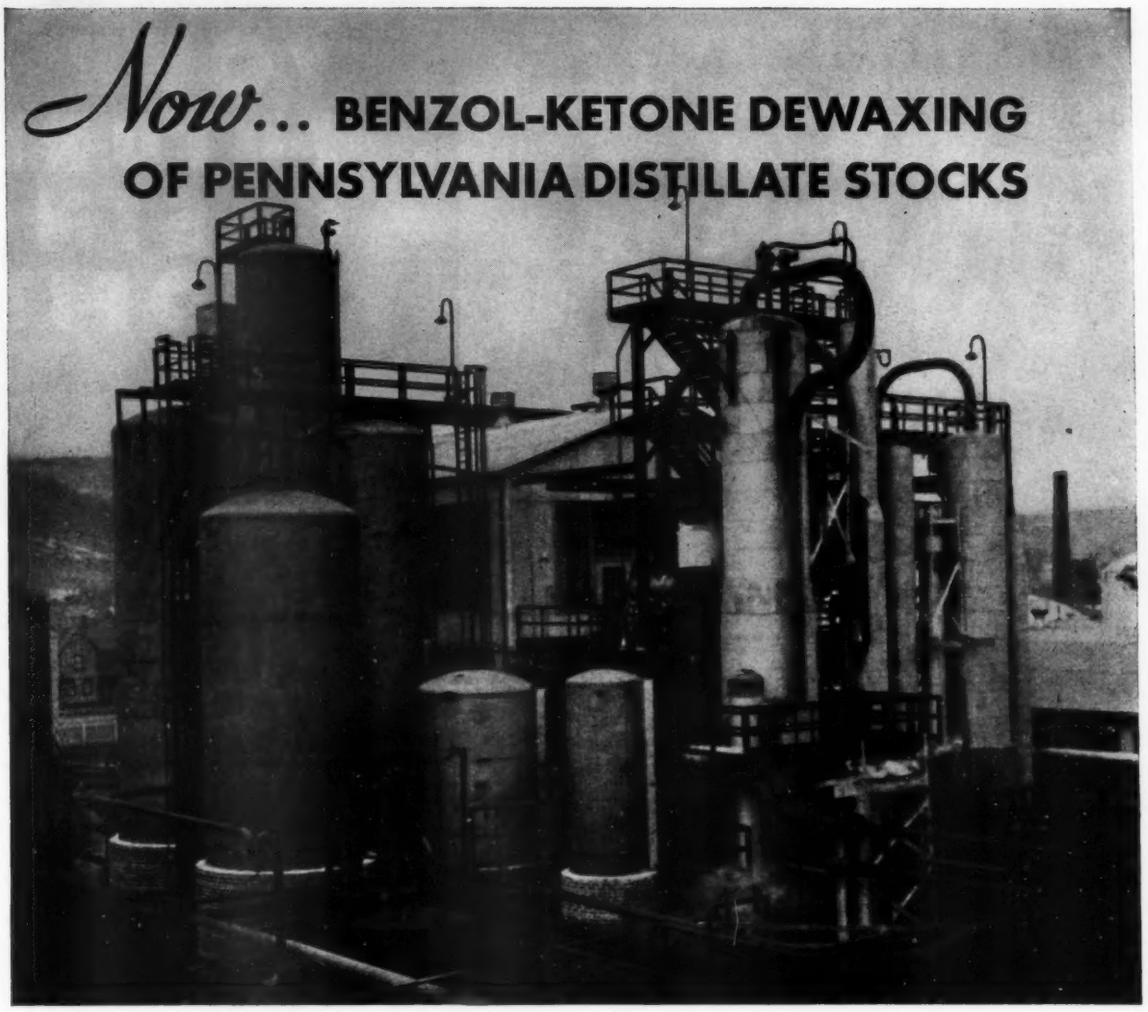
CITIES SERVICE OILS AND GASOLENES

Now... BENZOL-KETONE DEWAXING OF PENNSYLVANIA DISTILLATE STOCKS



For a prominent Pennsylvania refiner Lummus recently completed a Benzol-Ketone Dewaxing Plant which is operating very successfully on Pennsylvania distillate stocks—at 30% over guaranteed thruputs.

This Lummus-built plant is delivering 83% yield of zero pour oil. The slack wax, containing 5% oil, is producing—*on first sweating*—60% yield of crude scale wax having approximately 0.2% oil. *These results are secured without inhibitors of any kind.*

To refiners of Pennsylvania neutrals or equivalent Lummus offers Benzol-Ketone Dewaxing Plants which produce higher yields of low pour lube oils and better wax. They materially reduce sweating and operating costs. Furthermore, they require no inhibitor.

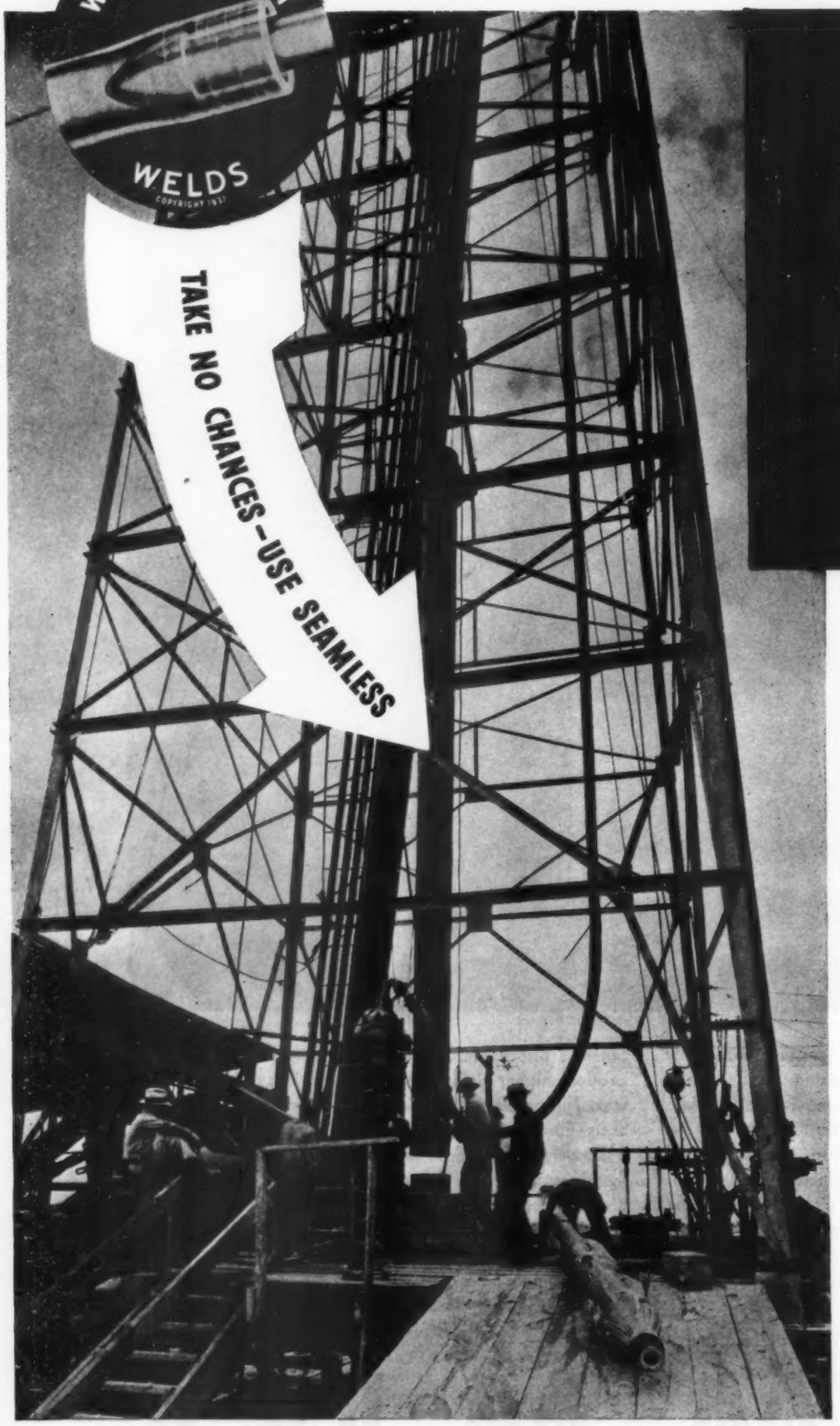
Largely as a result of the successful performance of the plant referred to above, Lummus is now building a Benzol-Ketone Dewaxing Plant for another well-known Pennsylvania refiner.

May we tell you more about these profit-making dewaxing plants?

THE LUMMUS COMPANY, 420 LEXINGTON AVENUE, NEW YORK, N. Y. • BUSH HOUSE, ALDWYCH, LONDON, W. C. 2

LUMMUS

PETROLEUM REFINING PLANTS



YOUR FUTURE CASING PROFITS

THE wise operator keeps in mind the "long pull" for profits. He knows that short-cuts and chances can easily wreck the most promising outlook. He works accordingly, gives careful, thoughtful consideration to each step, scrutinizes every material used, large and small, weighing values, pondering ultimate life and economy.

Casing, the biggest single material expense of the well, comes in for extra close attention. Emergencies sometimes arise in running and cementing — leaky joints may develop — lack of uniformity in casing ends may cause loss of time and labor in make-up. These and other features will largely determine the ultimate profits from the well.

Take no chances — play safe, specify NATIONAL Seamless. Pierced from solid steel, uniform wall-strength is assured. It cannot split at any place along a weld a mile or more down; it has no welds. Carefully finished ends mean that it stabs easily, screws together smoothly and accurately. In your next well, buy your future casing profits now, be sure to specify NATIONAL Seamless A. P. I., Diamond B X and B 8,

America's Preferred Casing, made by the world's largest manufacturer of steel pipe and tubes.

NATIONAL
Seamless Casing
X A.P.I. 8

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

You are paying for it . . . why not get it?

PRIOR to the building of a plant for the manufacture of JELOX, all of the well-known areas where bentonite is found were carefully checked to determine the location of the best quality of bentonite for drilling mud purposes. The quality of JELOX is proof of the thoroughness of this search. In the JELOX plant scientifically controlled driers, and modern grinding, screening and air-separating equipment turn bentonite into the finished jell mud product which is so readily winning the acclaim of the field.

JELOX is the proven solution to jell mud mixing difficulties. It swells 20 to 50 times as fast as powdered bentonite. Unlike ordinary powdered bentonite, it does not float on water. Swelling starts immediately, and complete dispersion results in a very short period.

JELOX goes into solution 100%, with no loss from clots, curds, etc. Since the recovery is complete, there is often a saving of 50% over the yield obtainable from pulverized bentonite.

JELOX costs no more than ordinary powdered bentonite. You are paying for it . . . why not get it?

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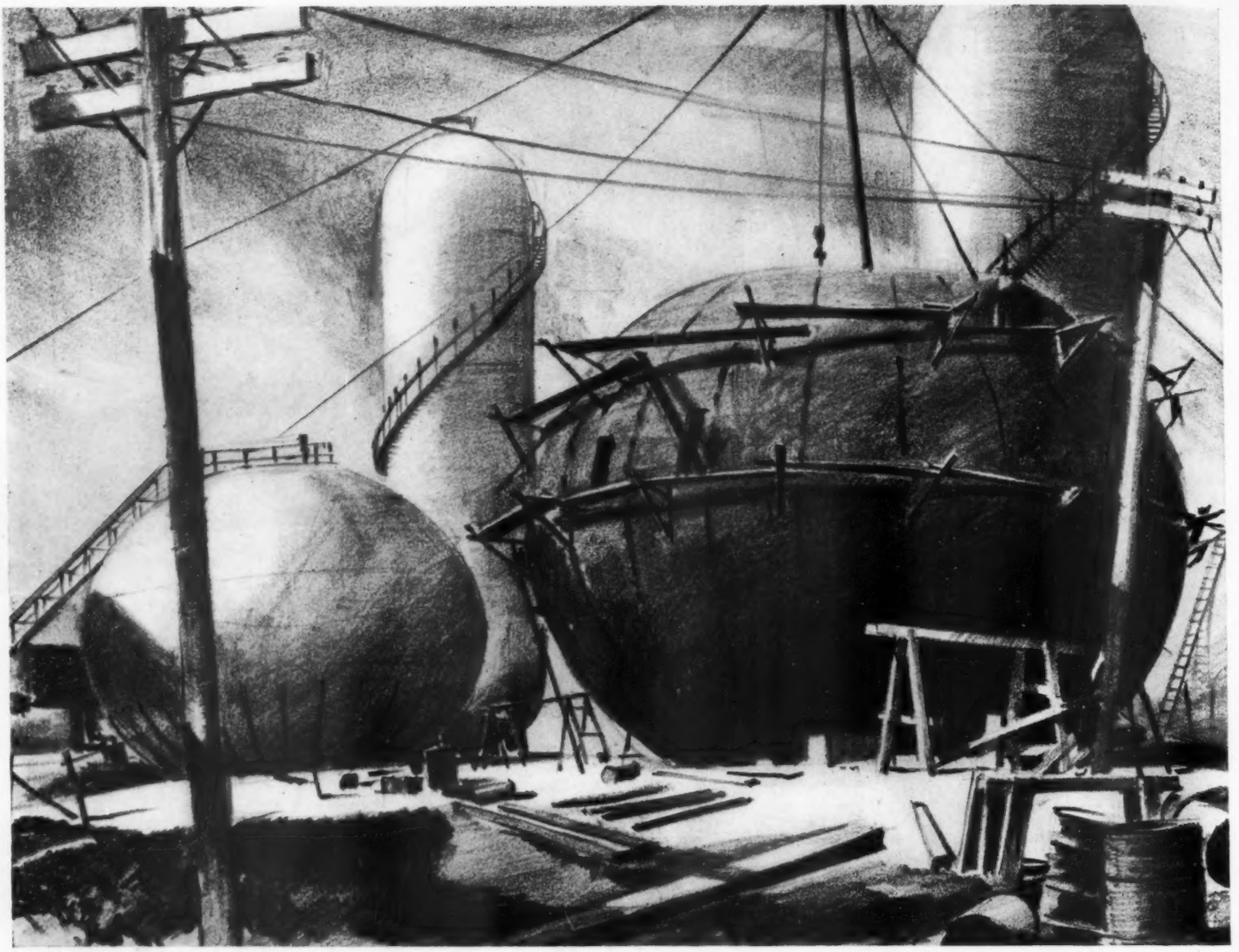
JELOX

IT IS NOT NECESSARY TO "COOK" JeloX



Pressure Tanks — *From a lithograph by E. M. Schiwetz*

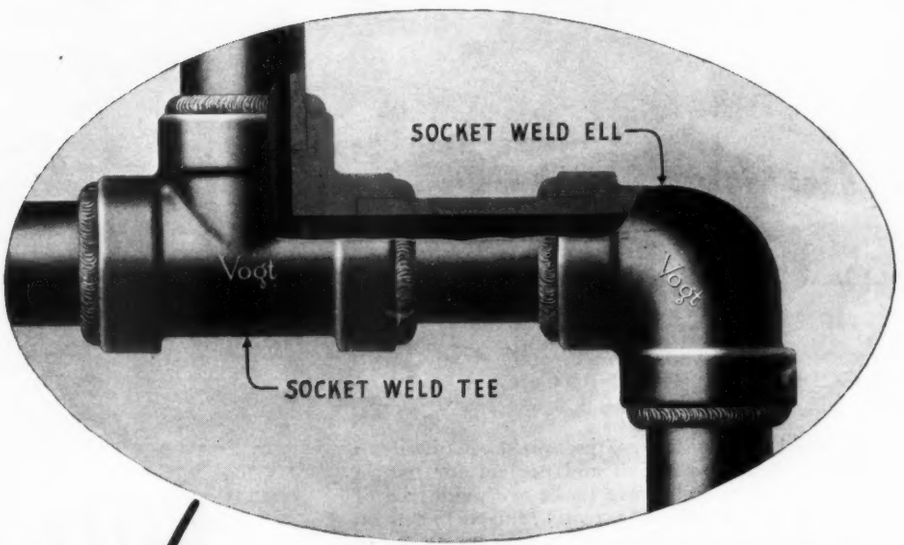
LOCATED in the oil capital of the Southwest, the FIRST NATIONAL serves producers, refiners, pipe line men and marketers. It is thoroughly acquainted with the oil man's varied banking needs, and it offers every department of the oil industry an experienced, complete, organized service . . . Many of the leading companies and individuals of Texas' oil industry have already established banking connections with the FIRST NATIONAL—*make it your bank, too.* You'll find that your business is appreciated.

FIRST NATIONAL BANK
in Houston

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

now!

DROP FORGED STEEL



SOCKET WELD FITTINGS

by Vogt

Easy to weld.. Stronger.. Safer

That same "drop-forge" quality, heretofore obtainable only in Vogt screwed fittings, is now available in Vogt Socket Weld Fittings. The material in these fittings is uniform in structure, fine grained and free from porosity. Because of the similarity of materials in fittings and pipe, it is easy to obtain sound welds.

Vogt Socket Weld Fittings offer these distinctive advantages;

1. Socket for pipe assures positive alignment before and after welding.
2. No weld "icicles" can clog pipe interiors.
3. Bore of fittings matches I. D. of pipe.
4. Extra margin of strength and safety because they are DROP FORGED BY VOGT.

Available from stock in a full range of sizes.

HENRY VOGT MACHINE CO., *Incorporated* LOUISVILLE, KY.

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DEPENDABLE PROTECTION

Against the invasion of SOUR CRUDE

No costly invasion of sour crude into your storage tank investment when you have COLUMBIAN COP-NIC Galvanized Bolted Steel Tanks!

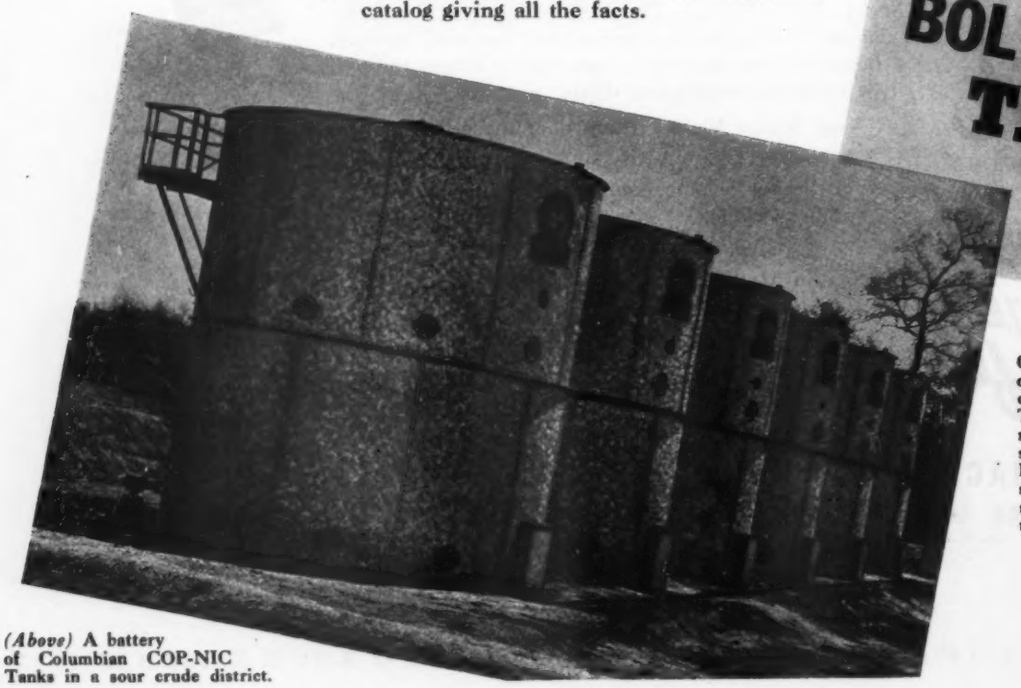
COP-NIC steel with a special galvanized coating makes Columbian Bolted Tanks highly resistant to corrosive action and perfect for use in sour crude districts. The sheets from which these tanks are made are of selected base material. An exclusive galvanizing process is used to put on a heavy coating of zinc spelter which is applied in such a manner as to become virtually a part of the steel itself, minimizing the possibility of any pitting or loosening of the coating.

The outstandingly successful results obtained with COP-NIC Galvanized Tanks are attributed to the process used in preparation of the sheets, of the coating, and the manner of fabrication which does not destroy or render ineffective the galvanized coating.

Protect your tank investment with Columbian COP-NIC Tanks. WRITE now for free illustrated catalog giving all the facts.

COLUMBIAN COP-NIC GALVANIZED BOLTED STEEL TANKS

Built Especially for Storing Sour Crude . . Last Longer in Ordinary Service.



(Above) A battery of Columbian COP-NIC Tanks in a sour crude district.

COP-NIC Tanks were developed by and are produced exclusively by Columbian Steel Tank Company, the largest fabricator in the world of bolted steel tanks for the oil industry. It is a new forward step in oil storage that every oil man should know about. Write us today!

COLUMBIAN STEEL TANK CO.

Dept. OJ - Kansas City, Mo.

The $100,000,000.00 World Oil Show in Houston, October 11-16, will present to oil men the world over the greatest educational display of equipment and methods ever assembled under one roof. Note here some of the attractions offered for your interest:

NEW EQUIPMENT

■ New designs, many never before shown, of modern equipment for exploration, drilling, production, pipe line, refining and gasoline plants.

EQUIPMENT IN OPERATION

■ Application of new designs and improvements, including the actual drilling of several holes . . . the demonstration of gun perforators, formation testers, geophysical instruments, modern coring units, and many other interesting developments.

LATEST DEVELOPMENTS IN PIPE LINE CONSTRUCTION

■ The latest developments in pipe line building, including welding methods, pipe handling, cleaning, coating and wrapping equipment in action.

METALLURGICAL DISPLAYS

■ Steel and metallurgical displays, including single exhibits costing more than $10,000 to prepare.

NEW INVENTIONS

■ Inventors' section, where free space will be devoted to introducing new products developed but not yet on the market.

CONVENTIONS

■ Meetings, such as the annual national convention of the Independent Petroleum Association of America, the American Gas Association convention, and others.

TECHNICAL MEETINGS AND CONTESTS

■ Technical meetings, including the Directional Drilling Meeting, Export Committee Meeting of Foreign Buyers and Manufacturers, Technical Refinery Meeting, Conference on Refinery Measurement and Control, Safety Meeting, National Petroleum First Aid Contests, Production Committee Meeting, and a meeting devoted to Drilling Development.

ENTERTAINMENT FEATURES

■ Entertainment including the Annual Oil Men's Dinner; Safety Engineer's luncheon and dinner; Motion pictures by the U. S. Bureau of Mines; and other technical and educational films; U. S. Army searchlight demonstration; several large bands.

» REDUCED RAILROAD FARES FOR OIL MEN «

INTEGRATED CRACKING

AND

POLYMERIZATION

ALCO IS NOW BUILDING a Viscosity Breaking Unit, integrated with a Gas Recovery, Distillate Stabilization, and Thermal Polymerization Plant, and combined with earlier cracking facilities for an overall capacity of 15,000 barrels per stream day.

This means, in addition to an increase in gasoline yield, a substantial saving in operating cost and capital investment per unit of delivered product.

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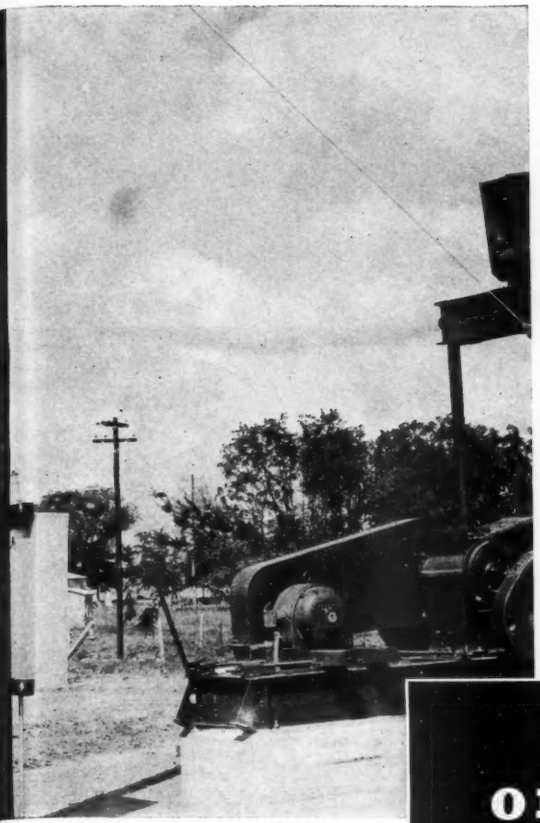
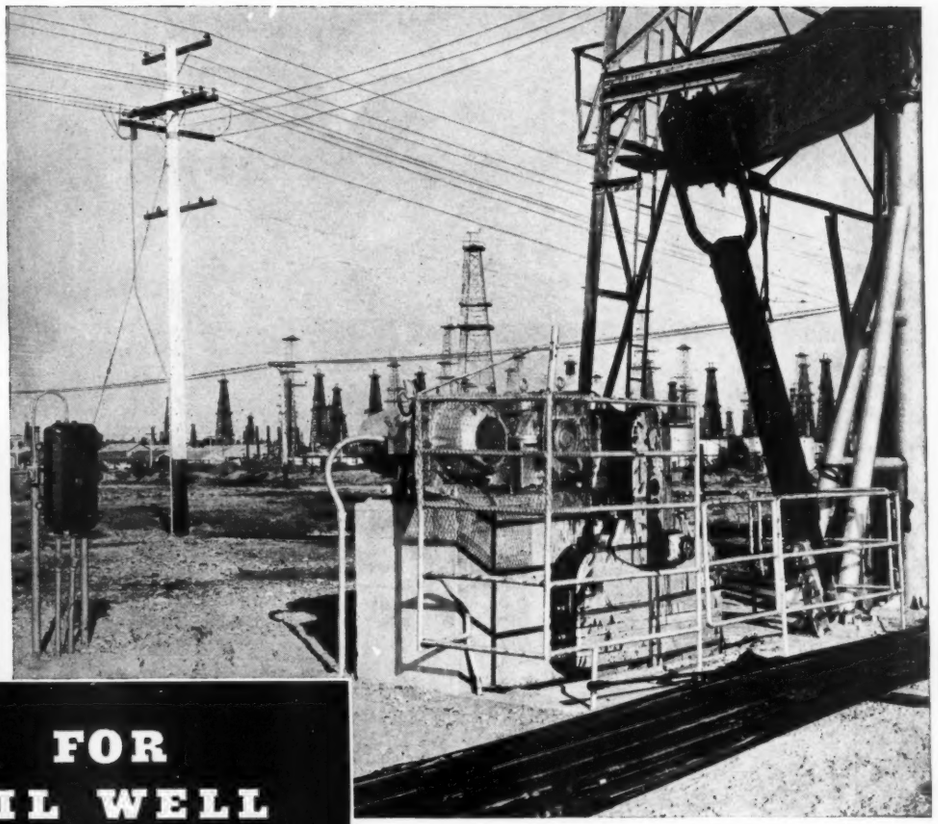
30 CHURCH STREET, NEW YORK, N. Y. *Inc.* ARTILLERY HOUSE, ARTILLERY ROW, LONDON, S. W. 1. ENGLAND

DIVISION OF AMERICAN LOCOMOTIVE COMPANY



Westinghouse motors, control and transformers supplying pumping power on the recently electrified E. H. Moore lease in the Fitts Pool, Ada, Okla.

FOR OIL WELL PUMPING



This installation in the Huntington Beach field employs an Oil Well Supply Co. gear unit, totally-enclosed fan-cooled Westinghouse motor and starter in dust-tight, water-tight cast iron case.

motor drive ENGINEERED *to the job*

Westinghouse brings an intimate knowledge of oil industry problems to the task of supplying your complete electrical requirements.

● The reputation for satisfactory service enjoyed by Westinghouse equipment throughout the oil industry is based on more than quality products. It results from thorough knowledge of industry problems, gained through long association in oil fields. This knowledge enables Westinghouse to engineer its electrical equipment to the exact needs of every pumping job.

From Pennsylvania to California on every type of installation, you will find Westinghouse equipment furnishing smooth, trouble-free and economical power to pumps.

Westinghouse service is available in oil fields everywhere. Call your Westinghouse representative on your next pumping problem. J 93276

Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

FROM DRILLING RIG TO FILLING STATION

DRILLING ● PUMPING ● PIPE LINES ● TANKERS ● REFINERIES ● SERVICE STATIONS

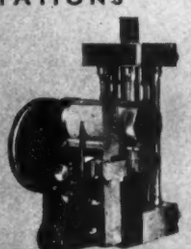
SPLASH-PROOF MOTORS—Corrosion resisting all-cast enclosure that gives complete protection for outdoor installations.

WEATHERPROOF "DE-ION" LINE-STARTERS—Cast enclosure with corrosion-resisting fittings. The "De-ion" contactor brings longer life and greater reliability to motor starting service.

GEARMOTORS—Combining motor and speed reducer in one compact unit—wide range of output speeds. Available with open, splash-proof, or explosion proof motors.

SURGE-PROTECTED (CSP) TRANSFORMERS—Completely self-protecting against lightning surges and over-loads.

THE DYNAGRAPH—For "weighing" wells. An extremely sensitive, all-mechanical recording device requiring no auxiliary equipment.



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MODERN REFINERS' DEMANDS

Today, after twelve years of intensive operating and research experience, Filtrol Corporation supplies many progressive refiners with SUPER FILTROL . . . an artificially activated clay that is prepared by chemical treatment under protective patents. Every sale is accompanied by a licensed right* covering its use under patents of Contact Filtration Company relating to clarification, neutralization and decolorization of petroleum oil.

★ PROTECTING LICENSE TO REFINERS

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Those interested are invited to make inquiry regarding their particular requirements.

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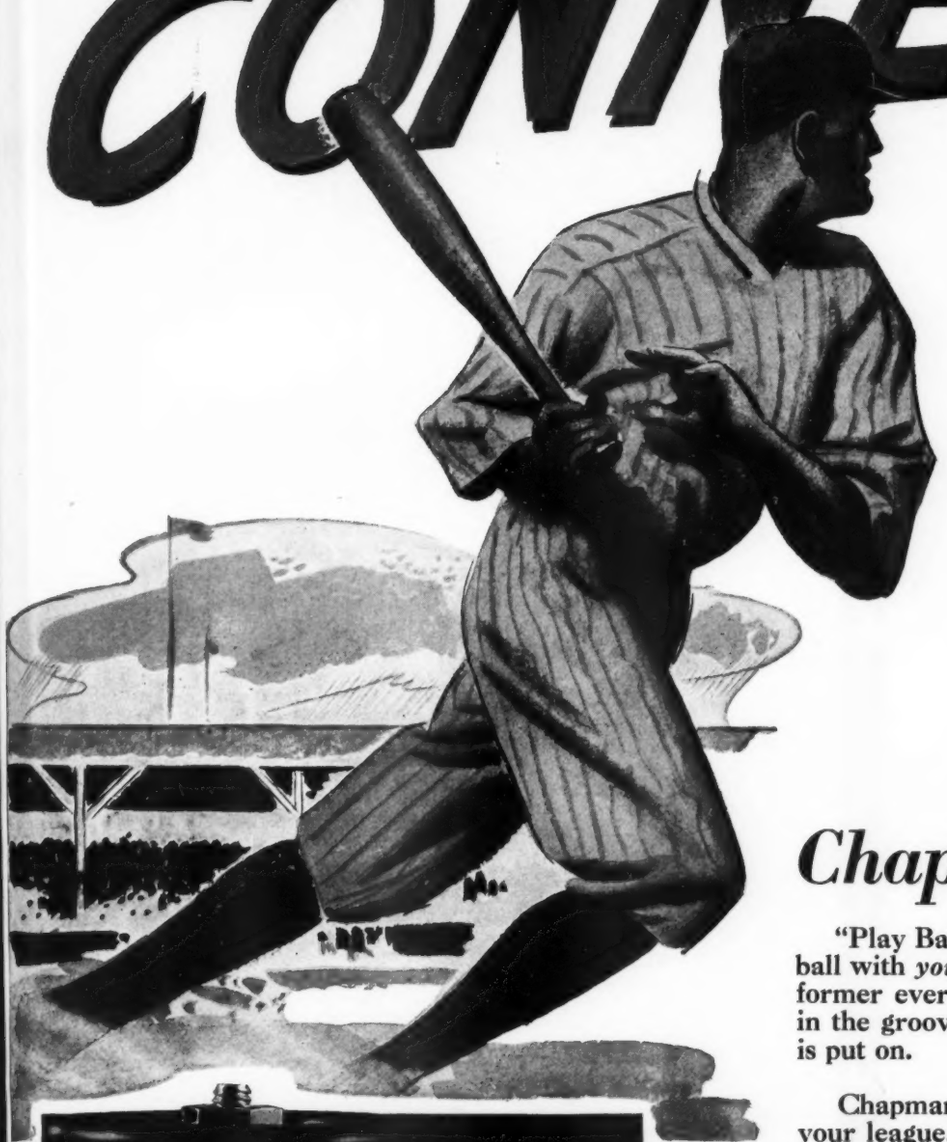


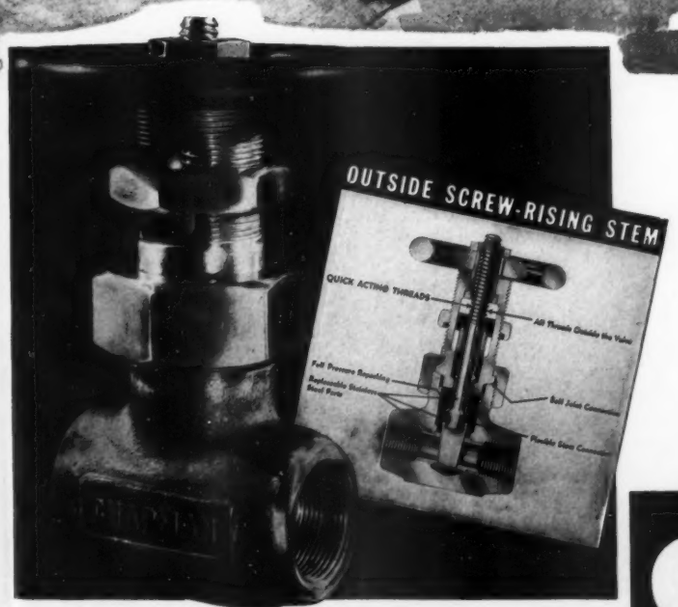
with the SMALL VALVE that's right in the Groove

Chapman's List 960

"Play Ball!" . . . with a small valve that will play ball with *you*. A small valve that's a dependable performer every time it comes to bat . . . that "swings in the groove" and won't foul out when the pressure is put on.

Chapman List 960 is good for at least 5 years in your league, at any position in your field or refinery lineup. It's guaranteed for all pressures up to 800 lb. at 750°F . . . and for cold working pressures of 2500 lb. up to the 1″ size, with larger sizes up to 1500 lb. List 960 is made of forged steel, with renewable stainless steel parts and an outside screw rising stem. Valve has quick-opening threads . . . may be repacked under full pressure when open.

Eight sizes are available, from ¼″ to 2″, at Chapman's plant and warehouses. And for extreme conditions, List 960 can be furnished in special alloys. Ask the nearest Chapman office for prices and delivery dates.



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